THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET WESTRAND LONDON TELEPHONE NUMBER—GERRARD 5356

No. XV. OF VOL. II., 1919.
No. 5015. Vol. CXCVII. LONDON, SATURDAY, OCTOBER 11, 1919. Pp. 112—Price 10d.

NOW READY. Price, cloth, 3s. net.

AIDS TO MATERIA MEDICA.
By ARNOLD E. COLLIE, C.M.S.S.A.Lond., M.A.Cantab.
Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden, W.C.2.

NEARLY READY. FIFTH EDITION. Price, cloth, 3s. 6d. net.

AIDS TO MATHEMATICS OF HYGIENE.
By R. BRUCE FERGUSON, M.A., M.D., B.C.Cantab., D.P.H.
Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden, W.C.2.

JUST PUBLISHED. SECOND EDITION. Price 3s. net.

AIDS TO HISTOLOGY.
By ALEXANDER GOODALL, M.D., F.R.C.P. Edin.
Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden, W.C.2.

Price 18s. net. Post free (inland), 18s. 9d.

NINETEENTH EDITION (REPRINTED).

SQUIRE'S COMPANION.

"SQUIRE'S COMPANION is a work of great practical value to medical practitioners, as well as to pharmaceutical chemists, dispensers, and pharmacologists."—THE BRITISH MEDICAL JOURNAL.

Published by J. & A. Churchill, 7, Great Marlborough-st., London, W.1.

FOURTH EDITION.
8vo. Pp. 260. With 40 Illustrations. Cloth. 6s. net.

SQUINT: its Causes, Pathology and Treatment.
By CLAUD WORTH, F.R.C.S.,
Surgeon, Royal London Ophthalmic Hospital (Moorfields), &c.
Bale, Sons & Danielsson, 83, Gt. Titchfield-street, &c.

Now Ready. Pp. xi.+269. With 3 Charts. 5s. net.

ON ALCOHOLISM: Its Clinical Aspects and Treatment.
By FRANCIS HARE, M.D., Medical Superintendent of the NORWOOD SANATORIUM, Beckenham.
"Marked by candour, common sense, and moderation ..... likely to become the standard text-book."—BRITISH MEDICAL JOURNAL.
London: J. & A. Churchill, 7, Great Marlborough-street.

OXFORD MEDICAL PUBLICATIONS

Just Published.

MANUAL OF PHYSICS.
BY
J. A. CROWTHER, Sc.D.,
Sometime Fellow of St. John's College, Cambridge; Demonstrator in Physics in the Cavendish Laboratory, Cambridge.
Crown 8vo. Cloth. 564 pp., with 250 Illustrations. 16s. net.

IMMUNITY IN HEALTH.
The Function of the Tonsils and Other Subepithelial Lymphatic Glands in the Bodily Economy.
BY
KENELM H. DIGBY, M.B., B.S., F.R.C.S.,
Ho Tung Professor of Clinical Surgery and Professor of Anatomy at the University of Hong Kong.
Demy 8vo. Cloth. Illustrated. 8s. 6d. net.

Henry Frowde and Hodder & Stoughton, 17, Warwick-square, Newgate-street, London, E.C. 4.

By FREDERICK W. PRICE, M.D., F.R.S. Edin.,
Physician to the Great Northern Central Hospital; Assistant Physician to the National Hospital for Diseases of the Heart, London.

DISEASES OF THE HEART.
THEIR DIAGNOSIS, PROGNOSIS, AND TREATMENT BY MODERN METHODS.
WITH A CHAPTER ON THE ELECTRO-CARDIOGRAPH.
Demy 8vo. 484 pp. With 245 Text-figures. 21s. net.

EDINBURGH MEDICAL JOURNAL.—"Taken as a whole this book is, from the practitioner's point of view, one of the best of the many monographs on the heart that have appeared of recent years."
DUBLIN MEDICAL JOURNAL.—"It is probably destined to take the place in the library of the present day physician that was occupied some twenty or more years ag› by Sir William Broadbent's well-known work."
PRACTITIONER.—"In his evident desire to place before his readers a succinct, and, at the same time, a comprehensive account of cardiac disease in the light of modern knowledge, Dr. Price has certainly succeeded."
MIDLAND MEDICAL REVIEW.—"It is impossible to enumerate the many excellencies of this book."
Henry Frowde and Hodder & Stoughton, 17, Warwick-square, Newgate-street, London, E.C. 4.

IMPORTANT.

MEDICAL CLINICS OF NORTH AMERICA

Just Issued.—FIRST NUMBER OF NEW VOLUME.

See Saunders' Advertisement on Page 7.

NERVE INJURIES and their TREATMENT.
By Sir JAMES PURVES STEWART, K.C.M.G., C.B.,
Senior Physician to the Westminster Hospital; and
ARTHUR EVANS, M.S., F.R.C.S.,
Surgeon and Lecturer on Surgery to the Westminster Hospital.
SECOND EDITION. Revised and Enlarged. The most recent work on the subject. Demy 8vo. Cloth. Pages 262. With 137 Illustrations.
Price 12s. 6d.
Henry Frowde, Hodder & Stoughton,
17, Warwick-square, Newgate-street, London, E.C. 4

Price 2s. 6d. net (postage 3d.).

OTITIS MEDIA
(MASTOID DISEASE).
SAVING THE HEARING OF THE DISCHARGING EAR WITH PERFORATED DRUMHEAD.
By CHARLES J. HEATH, F.R.C.S. Eng.,
Consulting Aurist, Metropolitan Asylums Board; late Surgeon, Throat Hospital, Golden Square, London.
"In his book Mr. Heath gives us a new pathology in Otitis Media ..... His work is already widely known, and this publication of his will carry conviction that the old pathology and the antiquated methods of treatment are finished, and that a new era has dawned in aural surgery. ..... It is a work which every medical man should read and possess, and which all education authorities should consult."
—MEDICAL WORLD.
Baillière, Tindall & Cox, 8, Henrietta Street, Covent Garden, London, W.C. 2.

LEWIS'S PUBLICATIONS.

JUST PUBLISHED. THIRD EDITION. Revised and Enlarged. With 9 Plates and 72 other Illustrations. Demy 8vo. 18s. net; postage 6d., abroad 1s. 3d.

MIND AND ITS DISORDERS. A TEXT BOOK FOR STUDENTS AND PRACTITIONERS.
By W. H. B. STODDART, M.D. Lond., F.R.C.P., Lecturer on Mental Diseases, St. Thomas's Hospital; Examiner in Psychology and Mental Disease to the University of London, &c.

NOW READY. FOURTH EDITION. Thoroughly Revised. With Illustrations. Crown 8vo. 5s. net; post free 5s. 5d.

THE DIAGNOSIS & TREATMENT OF HEART DISEASE.
Practical Points for Students and Practitioners.
By E. M. BROCKBANK, M.D.Vict., F.R.C.P.,
Hon. Physician, Royal Infirmary, Manchester, &c.
"The text is practicable and reliable as ever."—THE LANCET.

JUST PUBLISHED. 1 Plate and other Illustrations. Royal 8vo. 7s. 6d. net; postage 5d., abroad 6d.

THE EXACT DIAGNOSIS OF LATENT CANCER.
An Inquiry into the true significance of the morphological changes in the blood. By O. C. GRUNER, M.D.
"This book is essentially one for the clinician and clinical pathologist."—THE LANCET.

**** *Complete CATALOGUE post free on application.*

LONDON: H. K. LEWIS & CO. LTD., 136 GOWER STREET & 24 GOWER PLACE, W.C.1.
PUBLISHING AND WHOLESALE OFFICE, 23 GOWER PLACE, W.C.1.

A BRITISH REMEDY

FOR BACILLARY AND COCCIGENIC INFECTIONS

OF THE RESPIRATORY ORGANS.

PROPHYLACTIC, THERAPEUTIC &

WONDERFULLY DEMULCENT.

THE SAFEST AND BEST LOZENGE TO PRESCRIBE FOR PATIENTS SUFFERING FROM AND SUBJECT TO ANY AFFECTIONS OF THE MOUTH & PHARYNX.

EDWARD COOK & CO. Ltd. (Disinfectant Specialists), Bow, London, E.3.

Valentine's Meat-Juice

For **Quieting** the **Irritable Stomach**, **Aiding Digestion** and **Sustaining** and **Strengthening**, **Valentine's Meat-Juice** is employed in **Hospital** and **Private Practice** in the treatment of

Diseases of Children

Dr. Raphael Raimondi, *Consulting Physician of the Montmartre Nurseries, Paris, France:* "I use VALENTINE'S MEAT-JUICE with Nurslings eighteen months to two years old. These very Weak Babies derive great benefit from the use of this tonic preparation. I give it to Debilitated Infants, after they are eighteen months old, in doses of one teaspoonful in thirty grammes of boiled water twice a day, and to be continued for a month."

Park B. Tucker, M.D., *Health Officer, Hamilton, Bermuda:* "I have found VALENTINE'S MEAT-JUICE invaluable for teething children, who readily take and retain it when they refuse everything else. It has also proved very palatable and strengthening in all cases of irritable stomach, especially to that peculiar nausea so often complained of from the abuse of ardent spirits."

For Sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,
D 117 RICHMOND, VIRGINIA, U.S.A.

THE LANCET.

No. 5015. LONDON, SATURDAY, OCTOBER 11, 1919. Vol. CXCVII.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

AN ADDRESS on the Army Medical Service as a Career. Delivered at the opening of St. Mary's Hospital Medical School on Oct. 1st, 1919. By Sir JOHN GOODWIN, K.C.B., C.M.G., D.S.O., Director-General, A.M.S. 631

ORIGINAL ARTICLES.

A Series of Cases of Bilharziasis treated by Intravenous Injections of Antimonium Tartaratum. By GEORGE C. LOW, M.A., M.D., C.M., M.R.C.P., Physician, Hospital for Tropical Diseases, Endsleigh Gardens, N.W., and Seamen's Hospital, Royal Albert Docks, E.; Lecturer, London School of Tropical Medicine; Temporary Major, I.M.S.; and H. B. G. N[illegible]VHAM, C.M.G., M.D., M[illegible]P., Director, London Sc[illegible]f Tropical Medicine; late [illegible]eutenant-Colonel, R.A.M.C. 633

Bilharziasis: its Incidence and Eradication. By (Mrs.) B. SHELDON ELGOOD, M.B Lond., L.S.A., Medical Officer to the Ministry of Public Instruction, Cairo; and THOMAS CHERRY, M.D., M.S. Melb., Major, A.A.M.C., 2nd L.H.F.A. 636

Some Causes of Failure in the Vaccine Treatment of Arthritis, Rheumatism, and Neuritis. By H. WARREN CROWE, M.D., B.Ch. Oxon., M.R.C.S., L.R.C.P. Lond.—(*Illustrated*) 637

A Note on the Diurnal Variation in Body-weight in Tuberculous Patients. By J. MACNAUGHT SCOTT, M.A., M.B., Ch.B.Glasg., late Medical Officer (Temporary), Stepney Green Tuberculosis Officer 639

Trench Fever and War Nephritis. By J. H. LLOYD, M.D Lond., Major, R.A.M.C. (T.F.).—(*Illustrated*) 640

The French Medical Curriculum: A Contrast. By D. T. BARRY, M.D., D.Sc., F.R.C.S., Professor of Physiology, University College, Cork 658

CLINICAL NOTES:
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Case of Sacculated Aneurysm of the Abdominal Aorta. By H. A. HAIG, M.B., B.S.Lond., Captain, R.A.M.C. (T.C.); formerly Bacteriologist and Pathologist to —— General Hospital, B.E.F. — (*Illustrated*) 645

A Note on the Relation between Chorea and Rheumatism. By H. L. CRONK, L.R.C.P. Lond., M.R.C.S., late Captain, Royal Army Medical Corps.—(*Illustrated*) 646

Notes on a Case of "Idiopathic Tetanus"; Recovery. By W. B COSENS, M.R.C.S., L.R.C.P., Major, R.A.M.C.; Honorary Surgeon, Dorset County Hospital 646

A Long-retained Foreign Body in Bronchus. By A. W. LEMARCHAND, M.R.C.S., L.R.C.P. Lond. 648

REVIEWS AND NOTICES OF BOOKS.

The Style and Literary Method of Luke. Part I. The Diction of Luke and Acts. By Henry J. Cadbury 647

Anæsthesia and the Nurse's Duties. By A. de Prendeville, LL.B., M.R.C.S. 647

The Journal of Physiology 647

The Military Surgeon 648

NEW INVENTIONS.

A New Urethral All Glass Two-way Irrigating Nozzle for Gonorrhœa (Dr. A. C. Magian).—(*Illustrated*) 648

LEADING ARTICLES.

AN EXPERIMENT IN PUBLIC MEDICAL SERVICE 649

THE WORKING CAPACITY OF THE DISABLED MAN 650

CONJUGAL TUBERCULOSIS 651

ANNOTATIONS.

The End of the Strike 652

"In Non-Essentials, Liberty." 652

The Typhus Epidemic in Eastern Europe 652

Transmission of Typhoid Fever by the Mother's Milk 653

The Tuberculosis Conference 653

Agglutination in Dysentery 654

Group Study in Ophthalmic Research 654

A New School of Botany 655

Animal Diseases in 1918 655

Treatment of Chronic and Quinine-resisting Malaria by X Rays 656

Voltaire on an Anti-venereal Crusade 656

Unilateral Sensory Changes in Sciatica 656

The Genesis of Mirth 657

SPECIAL ARTICLES.

Notes on Housing: The International Red Cross and Housing.—New Publications.—Manuals and Memoranda.—Temporary Accommodation.—Concrete Houses.—Housing in Nova Scotia 660

The London Medical Exhibition: Progress of British Manufacturers.—The Exhibits.—Further Efforts Necessary 661

Scotland: University of Edinburgh: Induction of Professors.—Scottish Vital Statistics, 1917.—Election of a Direct Representative for Scotland to the General Medical Council 662

Ireland: Health of Belfast in 1918.—Doctors' Fees.—The late Dr. Samuel Wright 662

URBAN VITAL STATISTICS:

English and Welsh Towns 663

Scotch Towns 663

Irish Towns 663

OBITUARY.

William K. Walls, M.B. Lond., M.R.C.S., Honorary Surgeon to St. Mary's Hospital, Manchester; Clinical Lecturer on Midwifery and Diseases of Women in the University of Manchester 663

Robert Macnab, M.D. Glasg., F.R.C.S. Edin., J.P. 663

CORRESPONDENCE.

The Routine Wassermann (Dr. E. T. Burke) 664

The British Federation of Medical and Allied Societies (Dr. C. O. Hawthorne, Sir Malcolm Morris, Dr. Charles Buttar, Dr. N. Howard Mummery) 664

Nurse Anæsthetists (Miss D. P. Foster, Dr. J. Blomfield) 665

The Differentiation of Mankind into Racial Types (Major-General Sir T. J. Gallwey) 666

Surgical Uses of a Hairpin (Dr. F. Ashton Warner) 666

What are Commercial Users? 666

Spiritualism (Mr. W. A. Griggs) 672

THE SERVICES.

Royal Naval Medical Service 667

Army Medical Service 667

Royal Army Medical College 667

Royal Army Medical Corps 667

Royal Air Force 667

The Honours List 667

MEDICAL NEWS.

A Devonshire Centenarian 640

Dorset County Hospital 640

Worthing Hospital 646

A War Memorial Hospital 646

The Child-Study Society 661

Examining Board in England by the Royal Colleges of Physicians of London and Surgeons of England: Passlist 667

University of Manchester: Passlist 667

University of Glasgow: Degrees conferred 667

Guy's Hospital Medical School 667

Tuberculosis Society 667

The Medical Society of London 667

Medical Mayor 668

Donations and Bequests 668

Royal Sanitary Institute 668

West London Medico-Chirurgical Society 668

Royal Portsmouth Hospital 668

NOTES, SHORT COMMENTS, &c.

Rules for the Prescribing of Baths. By CHARLES F. SONNTAG, M.D. Edin., Physician in Charge of the Hydrotherapy Department of the Special Military Surgical Hospital, Shepherd's Bush, W.; late Temporary Captain, R.A.M.C. 669

Cause and Effect 671

Child Welfare 671

Hygiene on Board Ship 672

Specimen Case-papers 672

The Law and Parental Responsibility 672

Medical Diary 668

Appointments 668

Vacancies 668

Births, Marriages, and Deaths 669

Acknowledgments of Communications received 672

JOHN BALE, SONS & DANIELSSON, Ltd., Publishers.

NOW READY.

TUBERCLE

2/6 net. **Annual Subscription 25/- net.**

CONTENTS.—OCTOBER, 1919.

SIGNED ARTICLES—Endopleural Operations in Pulmonary Tuberculosis; Jacobæus's Method. By W. HOLMBOE.—On the Necessity for a Uniform Standard of Classification in Pulmonary Tuberculosis. By JOHN GUY.—SHORTER COMMUNICATIONS—A Case of Innocent Tuberculosis. By Sir STCLAIR THOMSON.—OURSELVES.—BOOK NOTICES AND ABSTRACTS—*Book Notices:* Rules for Recovery from Tuberculosis. By LAWRASON BROWN, M.D. The Dispensary Treatment of Pulmonary Tuberculosis. By HILDA CLARK, M.B., B.S. Artificial Pneumothorax and other Surgical Interventions in Pulmonary Tuberculosis. By Professor JUAN B. MORELLI. The Early Diagnosis of Tubercle. Second Edition. By CLIVE RIVIERE, M.D., F.R.C.P. Consumption a Curable and Preventable Disease: What a Layman Should Know. By LAWRENCE F. FLICK, M.D. Infection and Resistance. By HANS ZINSSER, M.D. *Abstracts:* The Treatment of Hæmoptysis. Sulphur Dioxide Inhalations. Recent Research in America. Influenza and Tuberculosis.—CRITICAL REVIEWS—Public Health Survey. The Status of the Tuberculosis Officer. Physiology and Hæmoptysis.—CURRENT TOPICS.—CENTRAL AND LOCAL AUTHORITIES.—SOCIETIES.—HOSPITALS AND SANATORIUMS.—NEWS.—APPOINTMENTS.—DIARY.

83-91, GREAT TITCHFIELD STREET, OXFORD STREET, LONDON, W.1.

THE PROBLEM OF NERVOUS BREAKDOWN

By EDWIN LANCELOT ASH,
Doctor of Medicine.

FOREWORD.

CONTENTS.

10s. 6d. net.

PART I. THE FOUNDATIONS OF NERVOUS BREAKDOWN.

CHAPTER I.—THE PROBLEM STATED.
A Nation's worth is based on individual nerve—The new age—Efficiency the key to success—Nerve health the key to efficiency—Nervous breakdown a question of national importance—Stress and strain of modern life—Foundations of nervous breakdown—Inherent hardiness of human nerves—Indications of failing nerve—The problem to be solved—Importance of mental control—Economic aspect of nervous breakdown.

CHAPTER II.—THE EMOTIONS.
Human feelings—Emotional stress and nervous breakdown—Definition of emotion—Feeling and action—Physical accompaniments of emotional excitement—Anger—Grief—Fear—Our feelings stamped on our bodies—Higher emotions—Heart *versus* head—Intellectualising one's feelings—Personal reactions of emotions—Ways in which emotional stress causes nervous disorder—Illustrations.

CHAPTER III.—NERVOUS TEMPERAMENT.
Nervousness—Temperament and character—Reaction to environment—Types of temperament—The nervous temperament—Temperamental blends—Normal and abnormal nervousness—Eccentricity—National temperaments—Degeneracy—Genius and morbidity—The ex-Kaiser as an interesting study in temperament.

CHAPTER IV.—SOME FACTORS DETERMINING BREAKDOWN.
Stresses of daily life—Work and worry—Common anxieties—Household worries—The worrying habit—Nerve weakness and a burdened mind—Nerves and domesticities—Strain of development.

CHAPTER V.—CONDITIONS PREDISPOSING TO BREAKDOWN.
(A) OCCUPATION, CLIMATE, AND CONSTITUTION.
Predisposing as opposed to determining causes—The prevalence of breakdown among brain workers—Influence of occupation—Strain of modern conditions—Motoring—Telephone work—Occupations' breakdown in America—Climate and neurasthenia—Debilitated affects of residence in Tropical countries—Heredity—Ancestral indiscretions—Marriage and consanguinity—Depleted stocks.

CHAPTER VI.—CONDITIONS PREDISPOSING TO BREAKDOWN.
(B) POISONS, SHOCKS, AND SOME OTHERS.
Nerve poisons—Auto-intoxication—Tea, coffee, alcohol, and tobacco—Drug taking—Influenza—Trench fever—Accidents and injuries—Traumatic neurasthenia—Nervous breakdown after operations—Race—Age.

PART II. THE VARIETIES OF NERVOUS BREAKDOWN.

CHAPTER I.—FORMS OF NERVOUS BREAKDOWN.
Harmony of function necessary for health—Basis of control—Central nervous system—The brain the seat of government—Ramification of nerve fibres—The term "nerves"—Nerves in disorder—The nervous type—Classification of nervous diseases—Relations of nervous breakdown—Three chief groups—Neurasthenia—Hysteria—The so-called borderland—Terms in common use—Psycho-neurosis—Psychasthenia.

CHAPTER II.—THE NEURASTHENIC STATE.
Neurasthenia—L'homme à petits papiers—Common neurasthenic symptoms—The question of subgroups—Le casquet neurasthènique—Other head troubles—Weakening of self-control—Fear of losing reason—Stevenson's picture of collapse from over-work—General consequences of neurasthenia—Heart and circulation—Over-sensitiveness—Some typical examples.

CHAPTER III.—MORBID FEARS AND DOUBTS.
Obsessions—Psychasthenia—Obsessional neurasthenia—Webster's definition of "obsession"—Common forms of obsessional thoughts—Morbid fears—Their physical accompaniments—Agoraphobia—Claustrophobia—Siderophobia—Anthrophobia—Morbid flushing and self-consciousness—Pathophobia—Astrophobia—Bathophobia—Fears about health—Morbid anxieties—Doubts and scruples—Over-conscientiousness—Fear of impulsive action—Some examples.

CHAPTER IV.—NERVOUS INDIGESTION.
Dyspepsia a common accompaniment of nervous disorder—Tone and its failure—Digestive processes susceptible to mental influences—Definitions of nervous indigestion—Consequences of dyspepsia—Vicious circle—Characteristics of nervous dyspepsia—Auto-intoxication—Secondary consequences—Classification of cases—Mucous colitis—Common misconceptions—Treatment must be mental as well as physical.

CHAPTER V.—HYSTERIA.
A psychological riddle—Hysteria known to the ancients—Pithiatism—Sydenham's definition—Bygone theories—Common signs of hysteria—Basis of the hysterical state—Disorders of movement—Curious reactions—Disorders of sensation—Witch's marks—Disturbances of general health—Hysterical attacks—La grande hysterie—Illustrations.

CHAPTER VI.—MULTIPLE PERSONALITY.
A simple case—Morbid desire for notoriety—Dual personality—An interesting problem—Consequences—Alternating personality—The case of Felida X—A clergyman's experience—Loss of memory—The famous Sally Beauchamp—Dr. Morton Prince's analysis—Professor Janet's investigations—Simulation of demoniacal possession—Dangers of dissociation.

CHAPTER VII.—WHAT THEN IS HYSTERIA?
The hysterical temperament—Its characteristics—Deficient powers of attention—Morbid emotionalism—Abnormal suggestibility—The spoiled child—Unhealthy dreaminess—Vain imaginings—What is hysteria?—Discarded views—No physical basis found—Babinski's theory—Auto-suggestion—Charcot—Janet's hypothesis—The Freudian school—Other theories.

PART III. THE HYGIENE OF NERVE.

CHAPTER I.—REDRESSING THE BALANCE.
Prevention of nervous breakdown—A special problem of hygiene—Not a question of destroying germs—Modern requirements for treatment—Difficulties of family practitioner—So-called nerve tonics—Principles of physical treatment—Electrical methods—Massage—The sick soul—Morbid introspection—Suggestion of right ideas—Other methods of treatment through mind—Functional and organic diseases—The search for a reliable principle of mind treatment—Prayer.

CHAPTER II.—THE REST CURE.
(A) GENERAL PRINCIPLES.
Natural recuperative forces—The great vis medicatrix naturæ—Medieval and modern medicine contrasted—The principle of rest—Weir-Mitchell's rest cure—Modern modifications—Planning a rest cure—Attitude of invalid—Duration—Place of treatment—Home or institution—Nursing—Qualifications of the nerve nurse—General surroundings.

CHAPTER III.—THE REST CURE.
(B) ROUTINE.
Daily routine—Sleep—Nourishment—Massage—Occupation—A typical programme.

CHAPTER IV.—DIET AND THE NERVOUS SYSTEM.
Nerve energy dependent on nutrition—Diet in nervous maladies—Personal idiosyncrasies—Advantages and disadvantages of milk—A mixed diet—General principles of diet—Sugar—Cheese—Stimulants—Baths—Effects on nervous system—"Reaction"—Important rules—Clothing—Natural heat—Exercise and body temperature.

CHAPTER V.—SLEEP AND SLEEPLESSNESS.
The mystery of sleep—The great restorer—An interesting experiment—Ability to sleep at will—Insomnia—Common forms—Causes—Fear and insomnia—Simple sleep-bringing devices—The restful mind—Some maxims.

CHAPTER VI.—REST AND RECREATION.
Rest apart from sleep—The rest hour—Ways of securing rest—Husbanding resources—Unhealthy restlessness—The proper ordering of spare time—Over-exercise—Common sense and nerve energy—Rest and over-work—Recreation—Walking—Cycling—Golfing—Change of air—Sea voyages—Smoking.

CHAPTER VII.—CHILDHOOD AND YOUTH.
Child father to the man—Plasticity of early life—The nervous temperament in childhood—Childhood fears—Night terrors—Enuresis nocturna—Hygiene of children's nerves Diet in childhood—Mental hygiene in the nursery—Morbid sensitiveness—Powers for work and play—Dangers of overstrain—A reasonable programme—Sensitiveness of early life—Youth—Critical period of adolescence—Its characteristics and dangers—The psychology of young men and maids.

CHAPTER VIII.—PRINCIPLES OF SELF-HELP.
The will to be well—Misconceptions about self-help—Importance of coöperation between patient and doctor—Conscientiousness in carrying out instructions—Holding on during set-backs—Self-reverence, self-knowledge, self-control—Strengthening self-control—Exercising inhibitory power—Self-denial—Getting rid of fear—Nerve-health and religious faith.

PART IV. THE BREAKDOWNS OF WAR.

CHAPTER I.—THE EFFECTS OF WAR STRAIN.
Strain of modern warfare—Shock from explosion—The strain of battle—Brain liable to both mental and physical assaults—Determining facts of war strain and civilians—General worries—Raids and bombardment.

CHAPTER II.—SHELL-SHOCK.
The wounded in mind—No new disease—A convenient term—Battle-field breakdown—Characteristics of war neurasthenia—Typical examples—Mental shock and its consequences—Paralysis—Other limitations of movement—Astasia-abasia—Dumbness—Blindness—Deafness—Further illustrations—Mental breakdown—War-hysteria—Psychological basis of shell-shock—The outlook in war-breakdown.

Publishers—Messrs. MILLS & BOON, Ltd., 49, Rupert Street, London, W. 1.

An Address
ON
THE ARMY MEDICAL SERVICE AS A CAREER.

Delivered at the Opening of St. Mary's Hospital Medical School on Oct. 1st, 1919,

BY SIR JOHN GOODWIN, K.C.B., C.M.G., D.S.O.,
DIRECTOR-GENERAL, A.M.S.

SIR JOHN BROADBENT, LADIES, AND GENTLEMEN,—Some months ago I was honoured by an invitation to give the opening address here to-day. As you know, I am an old St. Mary's man, and consequently I need hardly tell you how deeply I appreciate this honour. I only wish that I could more adequately and efficiently fulfil the task which I have undertaken. I would crave your indulgence on two pleas: firstly, that I have but little experience in delivering addresses such as this; and, secondly, that I have been extremely busy throughout this summer. The time has passed, and it was comparatively recently that I realised the near advent of the first of October and the fact that my address to you was still unwritten. I cast round for advice. I asked one friend, a man who is well known to many of you, as to the nature of the subject on which I should address you. He replied: "Oh, that's quite simple. Reply to the criticisms which have been directed at the Army Medical Service during the war." My reply to this was that I had only been asked to give one address, and had not been requested to read a series of papers extending throughout the winter session. Finally, I thought that I would simply be guided by the experience of my daily life during the last 18 months, and would talk to you on a subject relative to which I answer innumerable questions almost daily, both verbally and by letter—namely, the advisability of adopting the Royal Army Medical Corps as a career; the present conditions and the future prospects of the service.

Now we have all heard a certain amount of criticism during the last few years, and, looking back over those years, I suppose that we can all see how things might have been somewhat better. We have made mistakes both of omission and commission, but it is always easy to be wise after the event, and I believe that even the most critical of us must own that the Royal Army Medical Corps has emerged from this war with a record of some good work accomplished and much knowledge and experience gained. I think that perhaps some of us do not quite realise the colossal nature of the task which faced the medical authorities at the outbreak of war, nor the enormous strain, anxiety, and labour which the various problems and difficulties entailed. This condition of affairs continued throughout the war; no sooner had one problem of immense difficulty and magnitude been dealt with than another situation arose which was almost appalling, but which had to be grappled with and overcome if disaster were to be avoided

A RECORD OF WORK ACCOMPLISHED.

Let us consider briefly as to what had to be accomplished in the way of personnel, hospitals, and equipment. At the commencement of the war we had in our regular Royal Army Medical Corps 1026 officers and 3168 non-commissioned officers and men. Every one of these had been detailed for his own specific work in the event of mobilisation; every officer knew what his unit was, where it would mobilise, and what his own particular post in that unit would be.

Officers had been selected, so far as possible, in accordance with their special abilities and training, and had been detailed accordingly for specific duties on mobilisation; for example, officers who had worked at hygiene and had taken special degrees, such as the Diploma of Public Health, were posted as sanitarians; others who had held surgical appointments were posted as surgeons to hospitals, &c.

This system was satisfactory so far as it went, but calculations were somewhat upset by the rapid and enormous growth of our Armies and by the expansion of military operations into many different quarters of the globe. Our original medical service of less than 4500 officers and men rapidly expanded until it eventually numbered more than 13,000 officers and over 130,000 non-commissioned officers and men. Comparatively few of these newly commissioned officers had any previous experience of service in the field or knowledge of field-service conditions, and our regular Royal Army Medical Corps officers and men were quickly scattered all over the various theatres of war.

I would say here that the two things which impressed me most during this war were the courage and resource shown by our newly commissioned officers, and the quickness with which they acquired knowledge of their duties. I have known a young temporarily commissioned officer, who had never before seen a shot fired in anger, carry on his duties under a heavy shell-fire with a cool courage which was beyond praise or description; and this not once, but in dozens of cases; and similarly I have seen young men with no previous knowledge of field-service conditions start to work in a field ambulance or casualty clearing station and improve themselves in their work with a rapidity and to an extent which one might have thought impossible.

As regards hospitals, at the commencement of the war we had 7000 beds in military hospitals in the United Kingdom; these were expanded until, at the time of the armistice, we had, in the United Kingdom alone, more than 364,000 hospital beds and 333,000 patients in our charge. The number of hospital beds throughout the various theatres of war totalled, at the time of the armistice, 637,746, and we had under our care 577,906 patients.

As regards material and equipment I shall not weary you with masses of figures, but you may realise the magnitude of the work in this direction when I mention that, quite exclusive of the initial medical equipment taken by units, we sent nearly 526,000 cases and bales of medical stores overseas.

To particularise a few items, I might mention 250,000 surgical instruments yearly despatched, over 96 million bandages, nearly 1½ million splints, and over 6400 tons of lint and wool. Vaccines—typhoid, cholera, dysentery, &c.—we prepare at our Royal Army Medical College at Millbank, and of these we supplied during the war more than 20,600,000 doses; these vaccines, if purchased in the open market, would have cost us more than 1¼ millions sterling. Of the various serums we furnished 11¾ million doses.

I think that these few figures may serve to visualise the enormous quantities of supplies of medical and surgical equipment which are required for a modern army in the field.

THE MEDICAL PERSONNEL OF THE R.A.M.C.

To revert for a few minutes to the question of our medical personnel, it would, of course, have been most desirable to fit every temporary commissioned officer into the particular niche for which he was best suited, but in view of what I have just told you, you may realise the difficulties. There can be no doubt but that one of the most important requirements in the Royal Army Medical Corps—in war time equally with peace conditions—is that the best possible use should be made of every man, that there should, in fact, be no "square pegs in round holes." Theoretically this desideratum should present no difficulties which could not be overcome, and with our present system I think that really satisfactory results are ensured. The aims of this system are briefly as follows:—

1. To record fully the special qualifications of each individual officer, the work done, and the appointments held by him prior to his having entered the service.

2. To obtain, in a convenient and readily accessible form, an accurate record of the movements, stations, and work of each officer.

A Card Index System.

In order to attain these ends a card index system has been established; the qualifications, previous work, appointments in civil hospitals, &c., of each officer are entered on this card, the original is kept at the War Office and the duplicate is forwarded to the headquarters of the command to which the officer is posted. All movements of the officer within that command, and the nature of the duties which he performs are entered on the card at the command headquarters. On the officer leaving the command the duplicate card, recorded up to date, is forwarded to the War Office, and any additional information is there entered on the card in the main index; the duplicate card is then forwarded from the War Office to the new command to which the officer has now been posted. By this method the card constitutes

a brief but complete record of each officer's services, and facilitates the employment of officers on the duties for which they are best suited, thus ensuring a more satisfactory form of service to the officers themselves and increased efficiency to the Army. The system will provide a means of continuous and accurate supervision of every officer's work, progress, and career.

ADVANTAGES AND DISADVANTAGES OF THE SERVICE.

With regard to the various advantages and disadvantages of the service I shall endeavour to lay matters before you fairly and without bias or prejudice.

Firstly, as to monetary considerations. I apologise for putting this first, it really should come last; but, sordid though it may be, I suppose that when a career is being decided upon the question of £ *s. d.* is bound to be considered by most of us, and, as a matter of practice, I find that this is usually one of the first questions asked by a young medical man who contemplates entering the Royal Army Medical Corps.

Pay and Allowances.

The new Royal Warrant, issued very recently, lays down the pay and allowances for the Royal Army Medical Corps as follows:—

On being commissioned as a Lieutenant in the Royal Army Medical Corps an officer receives pay at the rate of £1 per diem, and he also receives various allowances which bring his total emoluments up to an annual sum of £495 if unmarried and £558 if married.

This pay steadily increases with service: a bachelor Captain (to which rank an officer is promoted after 3½ years' service) receives £622 per annum, a Major £815, a Lieutenant-Colonel £907 (increasing to £1189), a full Colonel £1395, and a Major-General £2001. Should an officer be married he receives slightly higher rates.

Now, if we read between the lines of official documents we may often—in addition to the bald facts so tersely stated—gain hints which may be of value, and, bearing this in mind, I would point out that, as regards the increased allowance for married officers, there is a proviso that an officer is not entitled to draw the increased married rate until he has attained the age of 30, that being presumably the earliest year of discretion; the inference to be drawn is evidently that an officer should not commit matrimony until he is 30 years of age.

Advice on these lines is, no doubt, excellent; it is frequently given and, I am afraid, as frequently disregarded; in fact I think that nearly all advice on the question of matrimony is prone, like the argument of doctor and saint, to go out "by the same door wherein it went." I should not presume to offer any of you advice on this weighty question. In the first place, it is one which every man must judge for himself; secondly, I should be a poor person to advise you, for, despite having received much advice on the subject, I myself married when I was 26; and lastly, I know full well that if I did give you advice you would quite disregard it when the advisability for doing so—in your own minds—arose.

There is, however, another inference which you possibly might—but which I beg you will not—draw from these official rates of pay, and that is due to the fact that the rate for a married officer is only some £50 or £60 more than that for a bachelor. Please do not infer from this—if any of you do not already know that such is not the case—that the additional expenditure involved by matrimony only amounts to some £50 per annum.

All the best authorities will tell you, and will be quite correct in so doing, that a married establishment involves a much greater expenditure than that of a bachelor; as regards one possible item alone, we have it on the authority of *Punch* that a perambulator costs more than a motor-car. Now, as to pension. After 15 years' service an officer can retire on £150 per annum, and thereafter he can retire on steadily increasing rates, depending on his rank and service, the *maximum* rates being £450 a year for a major, £600 for a lieutenant-colonel, £800 for a colonel, and £1000 for a major-general.

From the above you will see that you are not likely to make a fortune in the Royal Army Medical Corps, but I would point out that it is not every man who makes a fortune in civil life, and I would also mention a few of the advantages of the Service. Firstly, the pay is such that a man can live comfortably, it steadily increases, and the provision of a pension ensures that a man is steadily, throughout his service, providing for the future. Another advantage to which I would draw attention is the fact that if an officer's health should fail, an unfortunate occurrence which may happen to any of us, he is granted sick leave up to 12 months on full pay, provided that there is a prospect of his being eventually fit for service. So much for the sordid financial side of the Royal Army Medical Corps. Now let us touch on the far more important question of

WORK IN THE SERVICE.

I was much impressed some years ago on reading the address which Mr. Rudyard Kipling gave at the McGill University of Montreal. He said: "Only use one hand to procure wealth, keep your right for the 'proper work of life,' for if you employ both arms in the game of acquiring wealth you will be in danger of stooping, in danger also of losing your soul."

Now, I have heard men say that there was not sufficient work in the Royal Army Medical Corps. I cannot say that I have ever at any time been so unfortunate as to suffer from an insufficiency of work—the direst evil that can befall any man—and I have more than a suspicion that when a man suffers from an insufficiency of work he is suffering from a neglect to make use of his opportunities. A man must always be ready to make use of his opportunities. Remember that "Fortune only favours the man who is prepared." I say with confidence that if a man makes the most of his opportunities he will always find an abundance of intensely interesting work in the Royal Army Medical Corps.

Specialist Appointments.

Should an officer show special aptitude for a particular subject, and qualify by examination in it, he is eligible for many years of his service—i.e. (and I draw especial attention to this fact), until he attains the rank of full colonel—to hold specialist appointments in the subject. These appointments have in the past carried additional pay at the rate of 2*s.* 6*d.* per diem; but these rates have recently engaged a good deal of our attention as regards revision, and it has now been decided that when we have again settled down to the more or less normal conditions of peace, which we hope will be in the comparatively near future, specialist appointments will be paid at the following rates:—

Operative surgery, medicine, ophthalmology, gynæcology, dermatology ... ... 5*s.* per diem.
Otology, laryngology and rhinology, radiology, anæsthetics, mental diseases ... ... 2*s.* 6*d.* per diem.

Several of the above rates of pay show a considerable increase over those hitherto in force—e.g., pay for specialist appointments in operative surgery, ophthalmology, gynæcology, and dermatology has been increased from the former rate of 2*s.* 6*d.* per diem to 5*s.* per diem. Medicine, not hitherto recognised and paid as a special subject, under the new scheme, will receive pay at 5*s.* per diem, while radiology and anæsthetics have been introduced as special subjects, appointments in which carry extra pay at 2*s.* 6*d.* per diem. There is also extra pay at rates varying from 2*s.* 6*d.* to 10*s.* per diem for the charge of a hospital or the medical or surgical division of a general hospital.

Hygiene and Pathology.

You may notice that in the above list of special subjects no mention is made of two very important branches of the profession, branches on which the welfare, indeed, the very existence, of an Army depends—I refer to hygiene and pathology. Now these two subjects have been dealt with, in official parlance, in another file, and I may say that that file was a very bulky one and entailed a very great deal of work, work which bore good fruit, for it was finally sanctioned this year that there should be two sub-directorates at the War Office, one in hygiene and one in pathology, each with a director at its head, assisted by a deputy director and a staff. Serving under the direction of these directors there will be assistant directors and deputy assistant directors at the various commands at home and abroad, in Egypt, Gibraltar, Malta, Ceylon, Jamaica, Bermuda, &c., and schools of hygiene will be formed in certain commands for the instruction of staff and regimental officers. By this means we hope to keep up to date with all the most recent developments as regards tropical and other diseases and the methods for their treatment and, even more important, for their prevention.

Administration and Professional Work.

There is one point on which I hear a very great deal, and on which I should like to make my own views clear, and that is the question of administration and professional work. I had very nearly said "administrative *versus* professional work," for from what I sometimes hear I might be led to believe that a combination of the two was impossible, that they were, in fact, incompatibles.

Now, honestly, I cannot see this. Surely,—how can it be seriously questioned or doubted by anyone?—the profession of medicine, to which we all belong, is the bed-rock, the essential, of the Army Medical Service. If you sink the profession you are left as a ship without a rudder. But—here I come to my proviso—every man in the Royal Army Medical Corps should endeavour to make himself acquainted with the organisation of the Royal Army Medical Corps and of the Army, and should hold in his hand at least the threads and principles of administration. It will not only be to his own advantage, but also immensely to the advantage of the Service if he does so, for think of what would happen on the outbreak of war if the officers of the corps were not acquainted with its organisation, with the principles of administering hospitals and other units, and with the functions of field ambulances, casualty clearing stations, &c. The acquiring of such knowledge is most interesting, it is not by any means difficult, and it will in no way whatever divorce him from his profession. Surely every man is the better for being able so to organise and administer any unit that every branch of professional work in that unit may be so carried out as to attain a really high standard of efficiency.

I do not wish to labour the point, but I do desire to impress on you that a man must keep up his professional knowledge, he must never allow it to lapse into the background; he must keep himself up to date, and consequently he must be constantly working. But the whole work of the Royal Army Medical Corps is so interesting that one can hardly call it a labour, it becomes one's life.

There is one point regarding the Royal Army Medical Corps on which I have not touched, and that is the fact that a certain portion of one's service is spent abroad. This fact may be regarded either as an advantage or a disadvantage, according to the tastes of the individual. Personally, I have always loved seeing other countries; some of the happiest and busiest years of my life have been spent abroad, and I think there are very many men who, like myself, can even "voyage in an atlas with the greatest enjoyment"; consequently I regard the foreign service as a great attraction in the Army.

Another point which I think appeals to many is the fact that one is working with, and for the good of, one's comrades in the Army. The soldier is the best man in the whole world for whom to work. He is not always easy to understand, and at first I found it a little difficult to realise the qualities which made certain officers beloved by their men. After I had been on active service, now 20 odd years ago, I understood, and Kipling puts it pretty clearly when he says, "All the years I have known So-and-so I have never known him to say whether he was cold or hot, wet or dry, sick or well, but I've never known him forget a man who was."

I may be biased, though I do not admit it, but I look upon the Royal Army Medical Corps as offering a really good career and a happy life to a medical man, and, were I starting life again as a newly qualified man, I should unhesitatingly choose it for myself.

FUTURE PROGRESS.

The improvements and advances which I have seen take place in the medical service of the Army during the last 25 years have been enormous, and I hope you will not regard me as a visionary or an idealist when I say that I look forward to steady and progressive improvements in the future. I hope and believe that the Royal Army Medical Corps in the years ahead of us will be deservedly looked to as an up-to-date scientific body of men, taking their part in the nation's work in the advancement of science and knowledge, and organised on such a basis that in a time of national emergency they may bear their share—and it is of necessity a very large share—of the nation's burden.

The last five years have taught us much. I do believe that the Royal Army Medical Corps stands now on a better basis with the rest of the Army than it has ever done, and I think that we may now regard the Royal Army Medical Corps and the civil profession as being one. The great majority of the civil profession has been—and very many members still are—in the Royal Army Medical Corps, and I honestly believe that we officers in the regular Royal Army Medical Corps are more closely bound by ties of mutual trials, mutual work and affection to the civil profession than has ever before been the case; and I also hope and believe that the civil profession is in far closer touch, and in much greater sympathy, with the Royal Army Medical Corps than it has hitherto been.

CONCLUSION.

And now, gentlemen, I have endeavoured to lay plainly and honestly before you a few outlines as to the advantages and disadvantages of the service. I have tried to avoid any bias or prejudice, and so far I have carefully avoided offering you advice—even on the subject of matrimony.

However, I have now reached an age when I am forced to regard life in retrospect rather than in prospect, and that being so, I hope you will pardon me if I venture to give you a few words of counsel.

Keep your youth, your enthusiasm, your energy; if you permit your youthful enthusiasm to wane you will find difficulty in regaining it.

If you would be successful and happy in your work you must give ungrudgingly of your best, for that way, and that way only, happiness lies. As Robert Louis Stevenson truly wrote: "If a man love the labour of any trade, apart from any question of success or fame, the Gods have called him."

The finest men—those who most command our respect, admiration, and devotion—are those who give their all to work for the work's sake, and not for any personal reward. We all know such men, and we know how much the profession and the nation owe to them.

And, finally, I would beg you always to be loyal to your profession and to your brother professional men; and if any of you do eventually enter my service you will, I know, be loyal to it and to the Army.

I am proud to think of the record which St. Mary's holds in the Army, both in the old days and during the recent war. I am so fond and so proud both of St. Mary's and of the Royal Army Medical Corps that it naturally follows that I earnestly hope that there may always be St. Mary's men in the Royal Army Medical Corps to uphold the honour and traditions of our hospital and school.

A SERIES OF CASES OF BILHARZIASIS

TREATED BY INTRAVENOUS INJECTIONS OF ANTIMONIUM TARTARATUM.

BY GEORGE C. LOW, M.A., M.D., C.M., M.R.C.P.,

PHYSICIAN, HOSPITAL FOR TROPICAL DISEASES, ENDSLEIGH GARDENS, N.W., AND SEAMEN'S HOSPITAL, ROYAL ALBERT DOCKS, E.; LECTURER, LONDON SCHOOL OF TROPICAL MEDICINE; TEMPORARY MAJOR, I.M.S.;

AND

H. B. G. NEWHAM, C.M.G., M.D., M.R.C.P.,

DIRECTOR, LONDON SCHOOL OF TROPICAL MEDICINE; LATE LIEUTENANT-COLONEL, R.A.M.C.

ONE of us (G. C. L.) published in May, 1919,[1] the details of a case of bilharzial disease treated by the new method of intravenous injections of antimonium tartaratum (tartar emetic), first proposed by McDonagh and subsequently amplified and carried out on a large scale by Christopherson in Egypt. Since that date the latter observer, in conjunction with Dr. J. R. Newlove, has published laboratory and other notes on 70 cases of the disease treated at the Khartoum Civil Hospital. The beneficial results of the treatment are well brought out in that paper.[2]

As regards the case just mentioned (Dr. Low's case), further examinations were carried out during the month of May, 1919, with constantly negative results, no further appearance of blood or ova taking place. At the same time, all clinical signs, such as pain in the back, &c., completely disappeared, and the patient sailed for South Africa on May 29th, perfectly satisfied in his own mind that he was completely cured.

[1] Journal of Tropical Medicine and Hygiene, May 15th, 1919.
[2] Ibid., July 15th, 1919.

We have now had the opportunity of studying a further series of cases of the disease, and as the results have again been excellent we think it advisable to publish them at once, as they confirm Dr. J. B. Christopherson's Egyptian experience in every way. It is important, therefore, that all bilharzia cases should have the chance of such treatment, as up to the present no drug has been known that has any specific action on the infection. Many have, it is true, been employed, but, at the best, those have only been palliative, if even that.

Detailed Records of Five Cases.

The following are the records of our cases. For numbers 4 and 5 we are indebted to Dr. C. W. Daniels, under whose care these patients were, and we have to thank him for his kind permission in allowing us to incorporate them in the series:—

CASE 1.—P. Complaint: Passing blood in urine. History: Born in Natal. Lived there till the war broke out. Then served in German South-West Africa and in German East Africa for about 18 months in all. Came to England in 1918 to train for a commission. On account of his having bilharzial disease was not successful, and was discharged from Army in December, 1918.

Previous illnesses: Mumps as a child, no measles, no scarlet fever. Malaria in G.E.A., not very bad; some jaundice after it. No venereal disease.

Present illness: Got bilharzial disease as a boy of 12 in Natal. Bathed in pools of rivers with other young boys. Fairly bad infection. Little or no improvement as he grew up. In German East Africa became very bad, passing a lot of blood. Has continued about the same since. Generally passes a large quantity of blood. Pain in small of back on doing any exercise; also gets tired very easily.

Examination: Apart from his urinary trouble no other signs of disease. Lungs perfectly healthy, heart sound. Urine, much blood, many terminal-spined eggs, albumin present; evidently from the blood; no casts. Blood, differential leucocyte count, P.M.N. 44, L.M. 12, L. 24, E 20. After observing the patient for some days he was put on a course of antimonium tartaratum intravenously and stood those well.

The records of his injections and the examinations of his urine are contained in Table I.

TABLE I. (CASE 1).

Abbreviations used.—A.T. = antimonium tartaratum (an intravenous injection). C. = a centrifuged specimen. The numerals after C = the number of specimens made from the deposit. When the deposit became very small in amount all could be examined under one cover-slip, this would read C 1, if more required then C. 2, 3, &c. C. by itself a centrifuged specimen, all the deposit examined under one cover-slip.

Date.	Drug. A.T.	Blood	Ova.
1919.			
April.			
24		Yes.	12 to a field.
25		,,	10 ,,
26		,,	8 ,,
28	gr. ½.	,,	7 ,,
29		,,	5 ,,
30		,,	1 ,,
May.			
1	gr. ½.	,,	6 ,,
2		,,	Nil.
3		,,	1 to a field.
5	gr. 1.	,,	1 ,,
6		,,	Becoming scanty.
7		Trace.	1 in 12 fields
8	gr. 1.	Yes.	1 ,, 6 ,,
10		,,	Very difficult to find.
12	gr. 1½.	Trace.	Very scanty.
13		No.	Eggs very scanty.
14		,,	,,
15	gr. 1½	,,	Eggs more numerous.
16		,,	Eggs very scanty.
17		,,	,,
19	gr. 2.	,,	2 ova C. 1.
20		,,	No ova C. 1.
21		,,	,, C. 2.
May.			
22	gr. 2.	No.	No ova C. 2.
23		,,	,, C. 1.
24		,,	,, C. 2.
26	gr. 2.	,,	,, C. 1.
27		,,	,,
28		,,	,, C. 2.
29	gr. 2.	,,	,,
30		,,	,, C. 1.
31		,,	,, C. 2.
June.			
2	gr. 2.	,,	,, ,,
Stop injections for present. Total grs. 16.			
4		No.	No ova C. 1.
5		,,	,, C.
6		,,	,, ,,
7		,,	,, ,,
10		,,	,, ,,
11		,,	,, C. 2.
12		,,	,, C. 1.
13		,,	,, ,,
14		,,	,, C.
July.			
7		,,	,, ,,
17		,,	,, ,,
21		,,	,, ,,

Remarks.—April 26th: No centrifuging. 26th: Now in bed. 30th: No centrifuging. May 1st: Fæces negative. 8th; Fæces negative. 15th: Rigor and felt seedy after injection. 19th: Began centrifuging the deposit to-day. 31st: P. 44, L.M. 14, L. 30, E. 12. June 5th: Seems quite cured. 14th: Left hospital to-day for a fortnight's holiday. July 7th: Last drops cloudy, due to spermatic fluid. P. 50, L.M. 13, L. 28, E. 9. Came back from his holiday to-day. All symptoms disappeared. No pain in back or elsewhere. 21st: Urine clear, no deposit.

CASE 2.—H. Complaint: Passing blood in urine.

History: Born at Norwich. In a bank before the war. Joined Army August, 1914. Went to Egypt, October, 1915, and was there till June, 1917, when invalided home for bilharzial disease. Used to bathe in a prepared swimming bath; not in canals or ponds. Walked in canvas shoes over irrigated fields frequently.

Previous illnesses: Measles, chicken-pox, scarlet fever. Malaria after returning to England from Egypt. No gonorrhœa or syphilis.

Present illness: February, 1917, began to pass blood at end of micturition, pains in the back, and tired feeling. The urine was then examined and bilharzia ova found. He was treated by urotropine and by rectal injections of collosol argentum. As he was not improving, was sent to England. Has been at work in the bank since coming home, but as condition was getting worse was sent into the Albert Dock Hospital for treatment.

Examination: Apart from bladder, systems all normal. Urine: Much blood, and many terminal-spined bilharzial eggs. A fair amount of albumin, no casts, epithelial cells numerous. Fæces negative.

Treatment: A course of antimonium tartaratum was given with excellent results, as Table II. shows.

TABLE II. (CASE 2).

Date.	Drug. A.T.	Blood.	Ova.
1919.			
April.			
24		Much.	6 to a field.
25		,,	6 ,,
26		Less.	4 ,,
28	gr. ½.	,,	5 ,,
29		Same.	5 ,,
30		More.	4 ,,
May.			
1	gr. ½.	Much.	1 ,,
2		,,	7 ,,
3		Less.	1 ,,
5	gr. 1.	,,	7 ,,
6		More.	Becoming scanty.
7		Much.	1 in 12 fields.
8	gr. 1.	Less.	1 ,, 6 ,,
10		Little.	No ova.
12	gr. 1½	,,	,,
13		,,	Very scanty.
14		More.	,,
15	gr. 1½	Little.	More numerous.
16		Trace.	Very scanty.
17		No.	,,
19	gr. 2.	,,	No ova C. 1
20		,,	1 ovum C. 1.
21		,,	No ova C. 2
22	gr. 2.	,,	1 ovum C. 3.
23		,,	1 ,, C. 1.
24		,,	No ova C. 1.
26	gr. 2.	,,	,, ,,
27		,,	1 ovum C. 1.
28		,,	No ova C. 2.
29	gr. 2.	,,	,, C. 1.
30		Trace.	,, C. 2
31		No.	1 ovum C. 1.
June.			
2	gr. 2.	,,	No ova C. 1.
Stop injections for present. Total grs. 16.			
4		No.	No ova C. 2.
5		,,	,, C. 1.
6		,,	,, ,,
7		,,	,, ,,
10		,,	,, ,,
11		,,	,, ,,
12		,,	,, ,,
14		,,	,, ,,
Aug.			
5		,,	,, ,,
6		Yes.	No ova C.
7		,,	,, ,,
10		Yes.*	No ova.
11		Yes.	Few ova.
Condition not cured. Go on with more A. T. injections.			
12	gr. 2.	Yes.	No ova C.
13		Trace.	,, ,,
14		No.	,, ,,
16	gr. 2.	,,	,, ,,
17		,,	,, ,,
18		,,	,, ,,
19	gr. 2	,,	,, ,,
20		,,	,, ,,
21		,,	,, ,,
23	gr. 2	,,	,, ,,
24		,,	,, ,,
25		,,	,, ,,
26	gr. 2.	,,	,, ,,
27		,,	,, ,,
28		,,	,, ,,
30	gr. 2.	,,	,, ,,
July.			
1		,,	,, ,,
2		,,	,, ,,
3	gr. 2.	,,	,, ,,
Stop injections again. Total grs. 30.			
4		No.	No ova C.
5		,,	,, ,,
7		,,	,, ,,
8		,,	,, ,,
9		,,	,, ,,
10		,,	,, ,,
11		,,	,, ,,
12		,,	,, ,,
14		,,	,, ,,

* Blood in last drops. Cells like kidney and bladder epithelium.

Remarks.—April 24th: 2 3' field. 26th: Is now in bed. 28th: Fæces negative. May 1st and 8th: Fæces negative. 15th: A little upset after injection. 14th: A good lot of albumin in urine. 17th: Albumin, faint trace. 19th: Began centrifuging to-day. 26th: Albumin, only faint trace. 31st: P. 58, L.M. 6, L. 22, E 14. June 5th: A few pus cells about still. Otherwise appears cured. 10th: Has complained from time to time of pain in left kidney; ? a stone. 11th: Ova dead, perhaps just a clump came away. 30th: A lot of epithelial cells in urine to-day, evidently being cast from healing ulcer. July 3rd: Spermatozoa and a few cells. 5th: A few epithelial cells. 7th: P. 49, L.M. 10, L. 28, E. 13. 10th and 14th: Perfectly clear urine. 15th: Left hospital to-day. Goes to Yarmouth for a holiday.

CASE 3.—R. Complaint: Passing blood in urine.

History: A labourer before the war. Never out of England till after joining army June 9th, 1914. Then went to France 1914. Came home wounded in hand July, 1915. Went to Egypt January, 1916. Sent home for bilharzial disease February, 1919.

Previous illnesses: Measles, strained his abdomen once. No gonorrhœa. A small sore on penis in Egypt 1918. In hospital a month for it. Said to be a soft chancre. No malaria, no dysentery.

Present illness: First noticed pain on passing water December, 1916. Then in January, 1917, blood appeared and pain in region of kidneys. Urine examined and terminal spined bilharzial ova found. Went on serving in Egypt till February, 1919. In hospital with the condition three times. Passed a lot of blood when in Egypt. Since returning to England not so much. No treatment since coming home. Has not had antimony.

Examination: Anæmic-looking, teeth good. Systems, heart and lungs nothing abnormal. Abdomen, nothing to note, no special tenderness over bladder. Urine, blood and a fair number of bilharzial ova (terminal-spined). Fæces, negative.

Treatment: A course of antimonium tartaratum injections, 20½ gr. in all were administered, again with the most beneficial results. Table III. gives the details.

CASE 4.—P. L. Complaint: Passing blood and mucus in stools.

History: Patient had served most of his time abroad on the West Coast of Africa. When war broke out he went to the Cameroons with the Army, and returned to England from there June, 1916.

Previous illnesses: Nothing of importance.

TABLE III. (CASE 3).—*Record of Antimonium Tartaratum Injections and Urine Examinations.*

Date.	Drug: A.T.	Blood.	Ova.	Date.	Drug: A.T.	Blood.	Ova.
1919				June.			
May.				16	gr. 2.	No.	No ova C.1.
15		Yes; not much.	Scanty.	17		,,	,, C.
22	gr. ½	Fair amount.	4 to a field.	19	gr. 2.	,,	,, ,,
23		Yes.	No ova.	20		,,	,, ,,
24		Yes; less.	4 ova C. 1.	21		,,	,, ,,
26	gr. ½.	,, ,,	4 ,, ,,	23	gr. 2.	,,	,, ,,
27		Yes.	3 ,, ,,	24		,,	,, ,,
28		No.	1 ovum C. 1.	26	gr. 2.	,,	,, ,,
29	gr. 1.	Trace.	2 ova C. 1.	27		,,	,, ,,
30		,,	No ,, C. 2.	28		,,	,, ,,
31		No.	4 ,, C. 1.	30	gr. 2.	,,	,, ,,
June.				July.			
2	gr. 1.	Trace.	1 ovum ,,	1		,,	,, ,,
4		,,	No ova ,,	2		,,	,, ,,
5	gr. 1½	,,	,, C. 2	3	gr. 2.	,,	,, ,,
6		,,	,, C. 1.	Stop injections. Total, 20½ gr.			
7		No.	,, ,,	4		No.	No ova C.
10	gr. 2	,,	,, ,,	5		,,	,, ,,
11		,,	,, ,,	7		,,	,, ,,
12	gr. 2.	,,	,, ,,	10		,,	,, ,,
13		,,	,, ,,	14		,,	,, ,,
13		,,	,, C. 2.	17		,,	,, ,,
14		,,	,, ,,	21		,,	,, ,,
				28		,,	,, ,,

Remarks.—May 22nd: Stood injection well. 23rd, 26th, 28th: Fæces negative. 31st: P. 48, L.M. 2, L. 36, E. 14. July 7th: P. 54, L.M. 5, L. 29, E. 12. Coming up as an out-patient now.

Present illness: The first symptoms complained of were an uncomfortable feeling in the abdomen in the mornings, this being relieved by the passage of fæces. Blood and mucus were then present in his stools, and a diagnosis of colitis was made. Diet and rest did not improve the condition. He returned to West Africa in October, 1916. During the winter the condition gradually got worse, and in March, 1917, he went into hospital. Emetine injections were then given with some clinical improvement, but a relapse with much blood and mucus again appeared in October, 1917. A fæcal examination then showed lateral-spined bilharzial ova. He remained in much the same condition till coming to England in November, 1918. Since being in England he has complained of lassitude and loss of weight, with mucus in the stools but no visible blood. The number of stools has varied from one to three a day. He was admitted into the Albert Dock Hospital on June 6th, 1919.

Examination: Nothing abnormal noted apart from the condition of the fæces. Urine, no albumin, blood, or sugar. Fæces, mucus, no blood. Microscopically lateral-spined bilharzial ova in small numbers.

Table IV. shows the records of the injections and the fæcal examinations.

TABLE IV. (CASE 4).

Date.	Drug: A.T.	Fæcal examinations.	Date.	Drug: A.T.	Fæcal examinations.
1919			July 4	gr. 2.	Nil.
June 11		3 ova.	,, 5		1 ovum.
,, 12	gr. ½	1 ovum.	,, 6		Nil.
,, 13		3 ova.	,, 7	gr. 2.	,,
,, 14		Nil.	,, 8		,,
,, 16	gr. 1.	2 ova.	,, 9		,,
,, 17		1 ovum.	,, 11	gr. 2.	1 ovum
,, 18	gr. 1½	Nil.	,, 12		degenerated.
,, 19		,,	,, 15	gr. 2.	Nil.
,, 20		4 ova.	,, 16		,,
,, 24	gr. 2.	Not examined.	,, 18	gr. 2.	,,
,, 25		Nil.	,, 22	gr. 2.	,,
,, 26		1 ovum degenerated.	,, 23		,,
,, 27	gr. 2	2 ova degenerated.	,, 24		,,
July 1	gr. 2.	Not examined.	,, 25		,,
,, 3		Nil.	Total gr. 21.		

Note.—Unless otherwise stated eggs were apparently healthy. On the occasion of each microscopic examination three slide preparations were carefully searched and the numbers recorded are the total number of eggs in such three slides. Eggs are recorded as degenerated when the contents are completely disorganised and no trace of miracidium can be made out.

It will be noted that the first obviously degenerated egg was met with on June 26th—i.e., 14 days after the commencement of the treatment and when a total of 5 gr. of the drug had been given. On July 5th one healthy-looking egg was seen, but experiments were not made to see if it would hatch in water. Thereafter eggs were only seen on two occasions and were obviously dead.

Differential blood counts were performed on four different occasions (Table V.). It will be noted that there was a relative rise in the eosinophiles during the course of treatment, a phenomenon previously noted by Christopherson and Newlove.

TABLE V.—*Blood Counts.*

—	Polymorphonuclears.	Large mononuclears.	Lymphocytes.	Eosinophiles.
June 11th ...	26	20	42	12
,, 19th ...	62	10	8	20
July 4th ...	20	6	49	25
,, 24th ...	29	5	56	10

The patient stood the injections very well. There was no cough, but at the end of an injection he often had a feeling of discomfort in the abdomen and a desire to go to stool, which quickly relieved the symptom. On one occasion a rigor followed one of the injections, and headache was complained of on two occasions. Phenacetin and caffeine quickly relieved this.

The patient left hospital on July 25th, 1919, expressing himself as feeling much better and having gained in weight. His stools then showed no ova, no blood, and only an occasional fleck of mucus.

CASE 5.—**F.** Complaint: Passing blood in urine.

History: Born in England; never abroad until October, 1915, when he went with his regiment to Egypt. Excellent health till November, 1917. Then taken ill with blood in his urine. No fever. Had only bathed in a special military bath.

Previous illnesses: Nothing of note.

Present illness: Started with urticaria, pain in stomach and loins. Sent to base where bilharzial eggs with terminal spines were found in urine. Sent to France after Egypt, then invalided home from there to England, July, 1918. Discharged from Army, October, 1918. Since that has gradually got worse.

Examination: Systems all normal. Urine: terminal-spined eggs present. Fæces negative.

Table VI. gives the records of his drug treatment and urine examinations.

Note.—The examination of the ova in this case was conducted on a different principle as follows: 24 hours' urine was taken, sedimented, and a drop large enough to just fill the space under a 7/8 in. coverglass was used for examination, three such preparations were made and the ova pooled and averaged.

TABLE VI. (CASE 5).

Date.	Drug: A.T.	Blood.	Ova.	Date.	Drug: A.T.	Blood.	Ova.
1919.				July.			
July.				29	gr. 2.	No.	No.
5		Yes.	Very numerous	30		,,	,,
				31		,,	1 dead ovum.
8	gr. ½.	,,	30				
10		,,	11	Aug.			
11	gr. 1.	,,	85	2	gr. 2.	,,	No.
12		,,	35	5	gr. 2.	,,	,,
14		,,	30	6		,,	,,
15	gr. 1½	,,	13	7		,,	,,
16		,,	14	8	gr. 2.	,,	,,
17		Yes, less.	28	9		,,	,,
18	gr. 2.	,, ,,	44	10		,,	,,
21		Yes, much less.	3	12		,,	,,
				13	gr. 2.	,,	,,
22	gr. 2.	No.	4	14		,,	,,
23		,,	6	15		,,	,,
24		,,	4	16	gr. 2.	,,	,,
25	gr. 2.	,,	2				
26		,,	2	Total gr. 21.			

Comments on the Cases.

The beneficial effect of the drug on all these 5 cases has been very marked therefore, and bears out the equally good results reported by Christopherson and Newlove in their large series of 70 cases.

Question of dosage.—In our series we have given 16 gr., 30 gr., 20½ gr., 21 gr., and 21 gr.; the largest dose of 30 gr. being required in Case 2, who after 16 gr. showed some blood again and a few ova on one day. An additional course of 14 gr. was therefore administered, which seems to have been sufficient to completely rid him of his infection.

There is no doubt that antimony given over prolonged periods of time, and in large doses, may produce signs of fatty infiltration in the liver and other organs,[3] and, therefore, the administration should be stopped whenever one concludes that the case is cured. The complement-fixation test devised by Fairley, if confirmed and proved to be sound, should allow one to determine when this has occurred, or in its absence the disappearance of blood and ova may be

[3] Breinl and Priestley: Journ. of Trop. Med. and Hyg., Feb. 15 h, 1918. Archibald and Innes: Journ. of Trop. Med. and Hyg., April 1st, 1919. Low: Brit. Med. Jour., June 7th, 1919.

looked upon as conclusive. A total amount of somewhere between 20 and 30 gr. would seem to be sufficient to effect a cure, and this, compared with some of the doses given in other diseases, is not, in our opinion, excessive. Even though a certain amount of fatty change is produced in the liver, this can easily be recovered from, as evidenced in alcoholism, ankylostomiasis, and other diseases. Bilharzial disease, it must be remembered, is a serious ailment, for which no treatment up to the present has proved in any way efficacious, and therefore it is quite justifiable to take the small risk involved in giving such injections. We have given much larger doses of antimonium tartaratum in other diseases, as the following list shows:—

Ulcerating granuloma (cured)	53½ gr.[4]
,, ,, (uncured) ...	114½ gr. in three courses.[5]
American leishmaniasis	47 gr.[6]
Kala-azar (Eastern)...	64¼ gr. (Fatty liver p.m.)[7]

In addition to those, one of Dr. Daniel's cases of Rhodesian trypanosomiasis (the only one we know who has survived his infection) has had over 500 gr. spread over 2½ years. This case at present is in quite good health, and the same may be said of the American leishmaniasis one. The kala-azar case did not die of the antimony, but of influenzal pneumonia.[8] Large doses can therefore be given if due care is taken, and if each case is watched carefully throughout the course.

Points on the administration of the drug.—It is, we think, much the best plan to keep the patient in bed the day of the injection, and only to let him up next day if no untoward symptoms have taken place. All symptoms must be carefully recorded, and any indications of gastric or constitutional disturbance must be considered in detail, and if bad and recurring at each injection may contra-indicate further injections. The urine must be examined to exclude nephritis and faulty elimination from the kidneys. Albumin of itself does not contra-indicate the injections if this is part of the disease (vide Case 2), but the injections should then be given with the greatest caution.

Rigors are not uncommon after some of the injections, and cough immediately after is often troublesome. Sipping cold water may relieve this very quickly. We have not noted tachycardia, but one case complained of a constriction over the cardiac area after some of his injections.

The dose should be small to begin with (gr. ½), and then gradually worked up to see how the patient will stand it; 2½ gr. at a dose may be considered the maximum, any increase on that being dangerous. One of us, however (H. B. N.), has found that African natives stand antimony well, and in trypanosomiasis in East Africa has given up to 3½ gr. twice weekly with no bad effects.

The dilution of the drug is also important; we always give it dissolved in 2 oz. (60 c.cm.) of normal sterile saline, and run it in through a fine needle as near as possible at blood heat. The solution is made up fresh a few hours before the time of administration, an important point; it must not be given old or after standing a long time. Too concentrated solutions, we believe, are dangerous.

At what intervals should the drug be given?—We generally give the drug twice a week, and it should not be administered more frequently than this. Perhaps it would be better to give it only once a week, like salvarsan and its derivatives, but this can only be settled by careful analyses of the urine and fæces to determine how long the drug takes to be excreted. If it is all gone in three or four days, then there would appear to be no harm in giving it again after such a period of time.

Addendum.—Since this paper was written the first three cases described have been followed up and watched. No further signs of bilharzial trouble have manifested themselves, and as some months have now elapsed since the injections it is justifiable, we think, to say they are really cured.

[4] Low and Newham: Brit. Med. Jour., Sept. 16th, 1916.
[5] Low and Newham: Trans. Soc. of Trop. Med. and Hyg., April, 1917, vol. x., No. 6.
[6] Low: Brit. Med. Jour., April 19th, 1919. [7] Ibid., June 7th, 1919.
[8] Loc. cit.

THE Regulations for the training of health visitors, issued by the Board of Education, having now been published for the required period, have been confirmed by the Board without amendment.

BILHARZIASIS:

ITS INCIDENCE AND ERADICATION.

BY (MRS.) B. SHELDON ELGOOD, M.B. LOND., L.S.A.,
MEDICAL OFFICER TO THE MINISTRY OF PUBLIC INSTRUCTION, CAIRO;
AND
THOMAS CHERRY, M.D., M.S. MELB.,
MAJOR, A.A.M.C., 2ND L.H.F.A.

PRIOR to the year 1914 it was known that a few cases of this disease had been contracted in Australia under circumstances which connected them with infected men returning from the South African War. This fact established the presence of some species of snail which was used by the parasite as its intermediate host. When affected men began to arrive from Egypt in 1916 one of us (T. C.) was directed to investigate the local conditions, and to report on the steps necessary to prevent the disease obtaining a permanent footing in Australia.[1] Subsequently the further results of our joint work in Egypt were reported to the A.D.M.S. in February, 1918.

The history of *D. hepaticum*, the ordinary liver fluke in sheep, shows that these trematodes easily adapt themselves so as to use different species of mollusca as intermediate hosts in different parts of the world. In addition to the presence of a suitable snail, it appears that the other essential condition is a scanty water-supply at a warm period of the year. Thus two islands in the Eastern Mediterranean—Crete and Cyprus—present divergent conditions, although both have winter rains and dry summers, and both have long been in close communication with Egypt. Crete is free from the disease because the lofty mountains keep the streams flowing all through the summer, whereas Cyprus is infected because it contains marshes with water drying up in early summer, and a river with holes in its bed which even at the end of summer contained enough water to bathe in.[2] In Algeria cases appear amongst the French troops with increasing frequency as their camps approach the Sahara. Arabia, with little water, is infected; Syria, with abundant springs, is free. Scanty water-supply is found even in some heavy rainfall or flood regions during the dry months of the year. Such conditions are found in Venezuela, some of the West India islands, and Mesopotamia, all of which are infected. The spread of bilharzia is thus favoured by concentration of the molluscs, making it easier for the embryo to find them; by concentration of the cercariæ per cubic foot of water; and by concentration of human activities around water.

Location of the Danger Zone in Egypt.

It has always been assumed that unfiltered Nile water is the means of infection of the children in Cairo, and that bathing in the river or in the large canals is dangerous; in fact, European troops have been kept out of all water in Egypt. But if the foregoing considerations are correct it is very unlikely that such immense volumes of water can ever become charged with cercariæ to a dangerous degree. The cercaria does not multiply after it has been discharged into the water from the snail. Moreover, men who have contracted the disease nearly all ascribe their infection to bathing in a small canal or in a small pool filled from the canal, and while nearly a thousand men bathed freely in the river during 1916 no resulting cases of disease have been reported. In addition, the snails are not easily found on the banks of the Nile or of even medium-sized canals, but are common in the small channels which ramify through every irrigated field. Since the fellaheen of all ages are very often in contact with the water in these small channels, it is easy to understand how the vast majority of such folk become subject to the disease. But while it is established that the population of Cairo is very heavily infected the mode of infection has not yet been made clear.

In order to ascertain the age at which infection becomes common, 186 children were examined consecutively at a native dispensary in one of the poorest quarters of the city. Microscopic examination of the urine gave the following results (B.S.E.): Out of 62 infants under 4, 2 were found to be infected; 62 children from 4 to 7 yielded 2 infected cases; whereas among the same number of children from 7 to 15, 12 proved to be infected.

No attempt was made to determine the extent of intestinal infection. The examination of 30 of the mothers of these children revealed no sign of urinary infection. The prevalence of the disease amongst the better classes may be inferred from the fact that at the present time 25 per cent. of youths, aged 16, applying for entry into the professional branch of one of the public ministries are rejected on this account. Former estimates placed the incidence at from 50 to 80 per cent. of boys between the ages of 10 and 18, and 25 to 30 per cent. of girls of similar ages.[3] The number of women affected at the age of 40 is less than 3 per cent.[4] These figures point to some method of infection which hardly operates during infancy, becomes active during childhood, and ceases to affect the adult women to any great extent so long as they reside in the city.

The hypothesis that Nile water, as supplied to the gardens in Cairo, is the chief source of infection[5] does not meet the age periods during which infection is active or quiescent. Having decided that unfiltered Nile water is probably not a serious danger, we examined the mollusca present in the small collections of water in places where the children can reach them. Specimens of *Bullinus* and *Planorbis* were found in small numbers in public ponds and fountains in Cairo. They were also present in a small fountain in a private garden and in the casks sunk in the ground from which the watering cans are filled. The Arab gardeners were quite familiar with the snails, and volunteered the explanation that they came from the Nile, which may or may not be correct. A large number of zirs (the great earthenware jars used to store water for household purposes) were examined and found to be free from snails. The large marble bath in the garden of the old Ismailia Palace is now dry, but there are on the floor abundant recent shells of *Bullinus*, *Planorbis*, *Limnea*, and *Unio*. Many snails are also present in small irrigation channels in the suburbs irrespective of the source of the water.

Suitable intermediate hosts are therefore present in the city and suburbs, and the habits of the people make it certain that these collections of water will often receive the ova of the trematode. Some of the Australians merely washed their hands and arms in these ponds, and yet received a full dose of the cercariæ. The Arabs rinse their mouths and drink the fountain water, while the children of native servants are often allowed to play in the employer's garden. It is, perhaps, more than a coincidence that the only European girl known by one of us (B. S. E.) to have become infected in Egypt used to be taken regularly by her nurse to the lawn surrounding one of these fountains. The importance of these sources of infection, however, is growing less every year, as, owing to the campaign against the mosquito, the fountains are disappearing from private gardens and the canals and ponds are being filled up. The suburban irrigation channels appear to be the only serious local menace.

The Sham-el-Nessim.

As these local sources could not account for all the infections we looked further afield. The Coptic Easter Monday is kept by all Egyptians, Moslem as well as Christian, as the Sham-el-Nessim. On this festival parents make every sacrifice in order that the children may have a good time. The family leaves home early in the morning for the country, and the children are allowed to play as they please around the banks of the ubiquitous channels. At this time of the year infection is likely enough to follow an hour's paddling in the water. Besides including children of both sexes and of every social rank, this annual exposure to infection accounts for the age-incidence which we find in Cairo. At the age of 6 or 7 the children become more independent and remain in the water for a longer time than the infants. This regular exposure to the attacks of the cercariæ is the most important factor in the causation of the disease among the city population. The second but much less important factor is found in the suburban irrigation channels and other small bodies of water already noticed.

Eradication of the Disease.

Up to the present time no attempt has been made to control the spread of this disease amongst the Egyptians—its presence for more than 3000 years investing it with the apparent authority of Fate. Interest in the matter may also die out because the regulation of bathing removes all danger of infection as regards the British troops in the country. Yet it would probably be an easy matter to eradicate the disease from the Delta and the Egyptian portion of the Nile Valley. In this connexion two important points may be emphasised: (1) that the danger spots are the small channels running through the fields, not the river or the large canals; (2) that a flock of ducks will quickly remove the snails from any small body of water and prevent these mollusca from re-establishing themselves.

We have already set out the evidence for the first of these propositions. The second is based on the following observations. All the ponds but one in the Zoological Gardens, Gizeh, Cairo, are frequented by ducks, both tame and wild. In these ponds snails can be found only after a prolonged search, and then only small specimens. The exception is a lily pond, which is kept free from ducks and is well stocked with half a dozen common species of mollusca. The lake in the Botanical Gardens, Melbourne, which has long been a sanctuary for wild ducks, is quite free from snails, and a similar alternation of snails and ducks holds good in Adelaide and Perth. The proclivity of ducks for snails is as marked on dry land as in the water. They not only keep gardens free from these pests, but they search the bushes and herbage for land forms, such as *Helix pisana*.

Thus in order to eradicate bilharziasis in Egypt each village should keep its own channels free from snails by means of a flock of ducks. The local duck, which is not a common domestic bird, may be suitable for this purpose; but in Egypt the Pekin, Muscovy, and Indian Runner ducks would doubtless thrive as well as in hot, dry parts of Australia. The green and dry berseem or clover would form part of the food of the birds, and the children could keep the flock in the required portions of the channels. The keeping of ducks would not be an innovation, but an extension of native custom in widely separated districts. The birds might be made a source of substantial profit to each village, and a bonus might be offered for the production of birds of specified quality for table use.

In the first place, a canal supplying a dozen villages might be selected for experiment and the results observed. A small expenditure is thus all that is necessary to give the scheme a trial, while the eradication of the snails would confer an inestimable benefit upon the whole native population.

References.—1. Reports to D.G.M.S., Melbourne, Government Printer, 1917. 2. Williamson: B.M.J., Nov. 9th, 1907. 3. Kantzky Bey: First Egyptian Congress of Med., 1905; Elgood: B.M.J., Oct. 31st, 1908, 4. Elgood: loc. cit.; Milton: Journ. Trop. Med., June, 1902. 5. Leiper: Journ. R.A.M.C., July and August, 1915.

SOME CAUSES OF FAILURE IN THE VACCINE TREATMENT OF ARTHRITIS, RHEUMATISM, AND NEURITIS.

BY H. WARREN CROWE, M.D., B.CH. OXON., M.R.C.S., L.R.C.P. LOND.

A CERTAIN measure of success has followed the treatment by vaccines of muscular rheumatism and fibrositis. Good results have also not infrequently been claimed in polyarthritis deformans (rheumatoid arthritis). To these two groups I would add in my own experience, primary neuritis—that is, neuritis not due to pressure or of toxic origin. A fairly high percentage of failures have, however, been reported, a fact damaging to the reputation of this valuable method of treatment.

The causes of failure may be grouped under six heads: (1) False diagnosis; (2) Errors in bacteriology; (3) Incorrect or inefficient vaccine; (4) Faulty administration of vaccine in regard to dosage and interval; (5) Peculiarities in the constitution of the patient and in his response to vaccines; (6) Mistakes in general treatment.

It is hoped that the discussion of these causes of failure in the light of experience gained from the bacteriological study and treatment of a considerable number of cases may tend to improve the results.

(1) *False Diagnosis.*

To this may be added failure to discriminate between curable and incurable conditions. Apart from such gross errors as confusing lumbago and Pott's disease, intercostal rheumatism and pleurisy, one must be on the look-out for gonorrhœal rheumatism and the pains of locomotor ataxia.

In the main, however, fibrositis and muscular rheumatism are easy to recognise, and can be readily and successfully treated by vaccines.

The diagnosis of arthritis is much more difficult. The monarticular varieties are best left alone, especially if of long standing. Failure here is the rule rather than the exception. Where multiple joints are involved the essential thing from the vaccine point of view (apart from the bacteriology) is to decide whether the condition is one of chronic rheumatoid arthritis in its generally accepted sense or of rheumatism. The earliest, almost pathognomonic, sign of the former is creaking of the occipito-atlantoid joint. Stiffness of one or more joints in the morning which wears off during the day is common to both diseases, but whereas in rheumatism the joints affected vary from day to day, in rheumatoid arthritis this is not usual. When periarticular inflammation and glossy skin appear, then, of course, no mistake is possible. Slight skin affections are more frequently associated with a rheumatoid state. X rays should always be employed before attempting the vaccine treatment of any chronic joint trouble, for there can be no complete success where bony changes have occurred. A radiogram of the hip-joint before treating sciatica will prevent many disappointments. It is very important to distinguish between rheumatic fever and acute febrile rheumatoid arthritis. The former will, as a rule, yield readily to vaccines, whereas the latter is not only extremely intractable, but will often flare up most alarmingly after a minimal dose. Full doses of salicylates should decide the point. Again, failure may result if it is not recognised that to find an uncomplicated case of either rheumatism or of rheumatoid arthritis is unusual. Both may occur together or either may be associated with a number of diseases of the alimentary and respiratory tracts. In these cases combined vaccines are necessary. It may be suggested that the bacteriological diagnosis is the main thing and that clinical diagnosis does not much matter provided the causative microbe is found. As will appear below, this attitude is frequently fatal to success.

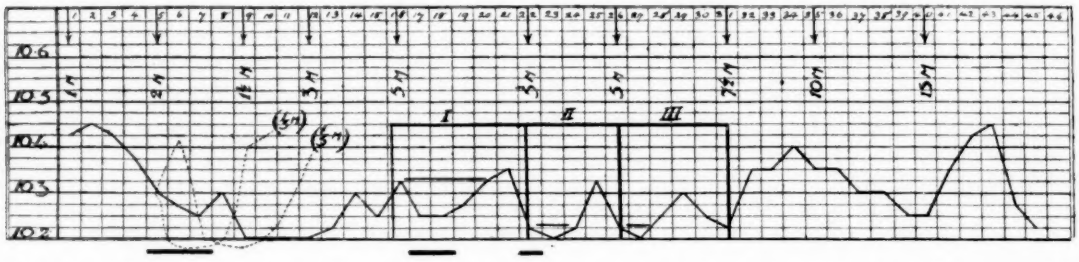


Chart showing the daily variation in weight of a woman suffering from fibrositis and undergoing treatment with mixed streptococcus and deformans vaccines. In the framed portion of the chart, note I., two days fall of weight and two more days to reach the former level; II., one day fall and one day to reach former level; III., one day fall and next day high above former level. The dose of vaccine is given in millions of each organism. The thick lines beneath the chart indicate increased pain in joints and muscles. The dotted lines indicate fluctuations such as may follow excessive doses, and the drastic reduction necessary is shown by the figures in brackets.

(2) *Errors in Bacteriology.*

Mistakes are extremely difficult to avoid in this field, and this although the specimens for examination are irreproachable. It is so fatally easy to find a microbe either in the gums, from the nose, from the fæces, or in the urine. Serum reactions give but little assistance in determining pathogenicity. It is for these reasons that clinical diagnosis is of paramount importance, and that, given correct diagnosis, stock vaccines are usually so much more efficient in this group of diseases than autogenous. In various earlier communications[1,2,3,4,5] I have tried to reduce the bacteriology of the "rheumatisms" to some sort of order. Further experience extending over several years has strengthened the suggestions then put forward. The following is a brief summary of the conclusions as published.

Constantly recurring are four varieties of streptococci and one of staphylococci. The streptococci included in these varieties are all capable of causing fibrositis and rheumatism both of muscles and joints. Probably the *Diplococcus rheumaticus* of Poynton and Payne is synonymous with several of them. Without exception they have their origin in the alimentary tract. Two are fæcal streptococci and two are salivary (Andrew's and Gordon's classification). These organisms can readily be distinguished from each other and from all other streptococci by their behaviour in culture on neutral red egg medium. All of them are to be found in severe cases in the urine. One, the *Streptococcus gracilis* or *zymogenes*, a gelatin liquefier, belonging to the fæcal group, must be regarded with extreme respect, as a vaccine prepared from it is very toxic. This organism has been found associated with the more serious forms of rheumatism, especially those complicated by either functional or organic heart disease. Three times was it isolated from malignant endocarditis.

The single variety of staphylococcus is closely allied to the *S. epidermidis albus*. It is this organism for which I ventured to propose the name *Micrococcus deformans*[5] on account of its frequent presence in, and probable ætiological connexion with, rheumatoid arthritis. This organism is also not uncommonly found in cases of neuritis. It is possible that rheumatoid arthritis and neuritis are manifestations of the same infection. For practical purposes at any rate, where nerve lesions are in evidence, a vaccine of this organism will be found to be effective. In rheumatic cases a stock vaccine of the streptococci should be used. In a number of cases with mixed symptoms the two vaccines can be combined with advantage. *Bacillus coli communis* is a fairly frequent contributory factor, but it must be very rare indeed as a primary cause of muscular or joint pains. Though *B. coli communis* is often the only organism that is seen microscopically, or can be isolated by ordinary methods from the urine, yet if the urine, when heavily infected, is incubated for a few hours, then heated to 60° C. for varying times, cultivation will almost always show a growth of streptococci after the *B. coli* have been killed off.

(3) *Incorrect or Inefficient Vaccine.*

This source of failure is partly due to faults in clinical diagnosis and partly to bacteriological errors. The only preventive is care. It is far wiser to use a well-tried stock vaccine than to prepare one from an organism of doubtful ætiological significance.

(4) *Faulty Administration in Regard to Dosage and Interval.*

The correct dose of a vaccine made from these organisms varies enormously in different cases. In consequence mistakes in dosage and interval are perhaps the commonest cause of failure. It is almost impossible to give any scale which will apply to more than a very few cases. The difficulty can be largely surmounted by charting the daily weight of the patient under comparable conditions of time and clothing. Symptomatic reactions read in relation to the daily weight chart will be found to provide an excellent guide. In a former communication[6] it was shown that the fluctuations of the weight, day by day, following an injection of tuberculin could be regarded as an immunity curve and used as such for determining the proper dose and interval. This has since been confirmed by Cochrane and Sprawson.[7] The same is true of streptococcus and deformans vaccines.

The chart shows the daily weight of a woman suffering from fibrositis and a slight degree of rheumatoid affection of the finger-joints. Stock polyvalent streptococci and

M. deformans were combined in each dose in equal numbers. The first dose (one million of each organism) was followed by a drop in weight, but since there was no definite curve and no subjective signs of a reaction the fall was regarded as accidental and the dose was doubled. Immediately the weight fell further and the pains in the joints and muscles increased (indicated by the thick line beneath the 5th, 6th, and 7th days of the treatment). The dose was clearly too large. It should be remembered that in this case without the weight chart the symptomatic reaction might easily have been put down to a change in the weather or some similar outside agency. The third dose was reduced to 1½ million. The weight remained at its new level. On doubling this amount at the fourth injection a definite rise and fall was recorded. In the absence of a negative phase the dose was then raised to 5 million. This had to be repeated three times, for after the first time fall in weight and reaction lasted two days, after the second one day, whereas following the third there was no more than a short negative phase registered on the chart and no symptomatic reaction. The immunity curve induced by each dose of 5 million is brought out clearly by the enclosing lines. It can be noticed that the interval between the doses was entirely dependent on the weight; 7½ million gave no reaction; 10 million seemed not to affect the weight at all. The drop was very gradual and probably due to the exercise of the increased powers of walking. Fifteen million was followed by a brief rise and fall. Several further doses were given, but it was at or about the last dose on the chart that the infection seemed to have come to an end. It will be noticed that the fluctuations in weight were considerable. On the 9th, 22nd, 26th, 32nd, and 41st days of treatment a difference of one pound was registered, and even greater excursions are often seen. It is then comparatively easy to graduate the size and arrange the spacing of the doses in accordance with the indications given by the weight chart. Failures due to faulty administration should by this means be practically eliminated.

(5) *Peculiarities in the Constitution of the Patient and in his Response to Vaccines.*

There are a certain few people who are relatively insensitive to injections of a vaccine-and in whom enormous doses fail to produce response. Such cases gain no benefit from treatment by this method. On the other hand, there are some so sensitive that the smallest dose may excite an intolerable reaction. Or, during a course of treatment, this state of sensitiveness may develop. Sensitiveness is frequently found on giving vaccines to a patient who has recently been inoculated with excessive doses of some other or the same vaccine. It is also met with to a most annoying degree in people who have been subjected to intravenous inoculations of bacterial extracts in large amounts. One gains the impression that in these cases, over-stimulation has disarranged the immunity mechanism, with the result that it has become irritable. Again, a spurious kind of sensitiveness may appear when an unsuspected organism becomes active in a patient under treatment by the vaccine of another organism. Finally, in another course of treatment and for no apparent reason, sensitiveness may develop and cause considerable trouble.

There are five ways of dealing with this condition, and I do not apologise for going into the matter fully because it presents one of the greatest difficulties with which one has to contend. (*a*) The first thing to be done is always to revise the bacteriology of the case, and if a secondary infection is found to prepare a fresh vaccine and try that. (*b*) The dose may be reduced almost to vanishing point, and then gradually raised at frequent intervals. This may succeed, but it more often fails. (*c*) The dose of vaccine may be combined with about ½ c.cm. of 4 per cent. eucaine lactate. The original communication on the subject[3] had reference to tuberculosis, but the method is equally efficacious in the diseases now under discussion. (*d*) A sensitised vaccine may be employed. There is no great difficulty in preparing this for the rheumatic streptococci. Unfortunately, a *M. deformans* antiserum which is necessary for sensitisation is far from easy to produce. Doses of a sensitised vaccine can be given daily at first and then every second or third day. Increase should be rapid, up to several thousands of millions. A return can then be made to quite small doses of ordinary vaccine. (*e*) Treatment may be suspended. If a good many doses of vaccine have been given before the sensitive condition appears this method is the best of all. Symptoms gradually disappear. Improvement may be maintained for weeks or months. When relapse occurs treatment may be resumed with confidence since sensitiveness will have disappeared and improvement is usually rapid.

In all cases of sensitiveness the weight chart will be found to be an almost indispensable guide. When the patient becomes sensitive an irregular curve develops, up one day and down the next, then up again, perhaps, and so on. As soon as sensitiveness is overcome the curve becomes rational and intelligible.

(6) *Mistakes in General Treatment.*

It is usual to find patients suffering from rheumatoid arthritis ordered haphazard massage, or rheumatics told to "walk it off." When vaccines are being given such directions are most dangerous on account of the auto-inoculations induced. During a course of vaccines massage and electrical treatment, baths, exercise, in fact, anything which may be the exciting cause of an auto-inoculation must be most carefully watched and controlled from day to day. Otherwise the success of the vaccines will be seriously prejudiced.

Conclusion.

In conclusion, one would draw attention to the importance of guarding against the fallacy that because the vaccine of a given organism has a pronounced effect on the patient that therefore this organism must be the causal germ of the disease. Sir Almroth Wright has recently suggested that vaccines are not nearly so specific as has hitherto been thought.[9] His conclusions greatly strengthen the case for a more extended use of stock vaccines.

References.—1. Streptococci in Urine (Warren Crowe): Proc. Roy. Soc. Med., 1911-12, v., Path. Sec., 159. 2. Differentiation of the Streptococci (Crowe): Proc. Roy. Soc., 1912-13, vi., Med. Path Sec., 117. 3. The Urine and Vaccines (Crowe): Vaccine Journal, 1913, ii., 149-53. 4. A Contribution to the Etiology of Rheumatoid Arthritis (Crowe): THE LANCET, 1913, i., 1377-9. 5. Primary Cause of Rheumatoid Arthritis (Crowe): THE LANCET, 1913, ii., 1460-4. 6. Crowe: Brit. Med. Jour., Dec. 6th, 1913. 7. A Guide to the Use of Tuberculin (Cochrane and Sprawson, Bale). 8. Crowe: THE LANCET, 1911, i., 366-8. 9. Wright: THE LANCET, 1919, i., 489.

Harrogate.

A NOTE ON THE
DIURNAL VARIATION IN BODY-WEIGHT IN TUBERCULOUS PATIENTS.

BY J. MACNAUGHT SCOTT, M.A., M.B., CH.B. GLASG.,
LATE MEDICAL OFFICER (TEMPORARY), STEPNEY GREEN TUBERCULOSIS OFFICER.

THE following observations were made on the body-weight of patients attending Stepney Green Tuberculosis Dispensary during the time that I was acting medical officer.

The Measurements of Body-weight.

The patients were weighed at each attendance between 2 and 4 in the afternoon. I made it a practice to call up 10 or 12 for re-examination next morning at 10 A.M. when they were again weighed. The weighing was done by the porter, who was very keen on his work, and after careful observation I can trust his records.

I noticed that in the majority of cases there was a fall in the morning weight as compared with the previous afternoon. It varied from ¼ lb. to as much as 4 lb.

The patients being of a poor class have no extensive wardrobe, and the difference was unlikely to be due to a change in the clothing. To eliminate this possible factor, however, the patients were instructed to wear exactly the same clothes in the morning as they wore in the afternoon. The fall in weight continued to be recorded.

Careful questioning and observation showed that changes in sleep or diet could not be the cause of this variation. The patients were unable to have any alteration in diet, and in every case reported sleep as usual.

Out of a total of 962 recorded weights I found that 146 showed no variation, 205 showed an increase, and 611 showed a decrease. The average increase was 0·77 lb. The average decrease was 1·03 lb.

The patients attending the dispensary are divided into positive cases, including pulmonary and glandular cases of

tuberculosis and suspect cases. The majority of the observations were made on women and children, because men and youths attended only in the evening, and were unable to sacrifice a morning's work to attend the dispensary.

Taking only the positive cases who showed an increase, a total of 55, the average increase is 0·6 lb., while the suspect cases showing an increase, total 150, give an average increase of 0·8 lb.

Taking only the positive cases who showed a decrease, a total of 177, the average decrease is 1·6 lb., as against the decrease of 434 suspect cases averaging 0·8 lb.

Conclusions to be Drawn.

From these figures I conclude that a tuberculous patient will record a greater fall in weight in the morning, as compared with the afternoon weight, than a person who is merely a suspect. Also, that where an increase is recorded in a positive case that increase is likely to be less than an increase in a suspect case. From observation I can say that the more serious and advanced the disease the greater the variation in weight recorded.

The probability of a decrease occurring as against an increase is 3 to 1.

Grouping the cases according to age, the average decrease is instructive.

—	Age.	Number of consecutive decreases.	Average decrease.
1	From 3 to 8 years.	20	0·8 lb.
2	,, 9 ,, 16 ,,	20	0·9 ,,
3	,, 17 ,, 24 ,,	20	1·7 ,,
4	,, 25 years.	20	1·5 ,,

This table includes positive and suspect cases. It is reasonable to infer from it that the decrease will be proportional to the body-weight of the patient.

Taking the individual patients, the variation practically remains constant even after several days, and alters according as the pathological condition improves or grows worse. Thus, one woman who came to the dispensary as a suspect case, on subsequent re-examination, recorded decreases ¾ lb., ½ lb., ¾ lb., 1 lb., 1 lb. before she was diagnosed as a positive case. On the other hand, a boy who was strongly suspect and improved under treatment recorded decreases 1 lb., ¼ lb., and in two later examinations his weight was even. Another woman improving under treatment changed the decrease into an increase, thus: 1½ lb. decrease, ½ lb. decrease, ¼ lb. increase, ¼ lb. increase. In a girl, a positive case of pulmonary tuberculosis, but quiescent, the decrease was invariably the same—namely, ½ lb.

The cause of this variation is obscure. It has been recognised that loss of weight accompanies, and is to a great extent proportional to, the increased temperature found in tuberculous patients. But in the case of children who had apyrexia and were increasing in weight this diurnal variation persisted. Nor can it be accounted for by temporary upset of the alimentary system. The influence of the nervous system can also be set aside, because 40 per cent. at least of the patients were Jews, who are most susceptible as regards "nerves," and their degree of variation is not increased over that of purely English stock.

My observations lead me to conclude:—

1. Tuberculous patients tend to have a diurnal variation in body-weight.

2. Of those showing such variation, 75 per cent. show a decrease.

3. The decrease is greatest from the age of 20 to 24 years, and is proportional to the severity of the infection.

A DEVONSHIRE CENTENARIAN.—Miss Elizabeth Reed died at her residence in Exeter on Sept. 22nd in her 101st year.

DORSET COUNTY HOSPITAL.—A special meeting of the Governors of the Dorset County Hospital, Dorchester, was recently held to consider means of increasing the income of the institution. It was stated that the estimated expenditure over income was nearly £2000. It was decided that in-patients should pay 7*s.* weekly, except in cases of proved necessity. The meeting appealed for increased financial support.

TRENCH FEVER AND WAR NEPHRITIS.

BY J. H. LLOYD, M.D. LOND.,
MAJOR, R.A.M.C.(T.F.).

RECENTLY I was looking through records of war nephritis that I had taken in January–March, 1918, because I had been struck by the comparatively large number of such cases admitted here, bearing a resemblance in certain of their features to trench fever. I had determined to collect consecutive series of such cases, and analyse them with a view to seeing, if possible, how far the resemblance went, and if any relationship existed between the two maladies. Owing to over-ruling circumstances it was only towards the end of the "nephritis season," 1917 1918, in January of the latter year, that I was able to start, and I had not got records of more than 15 cases before I had again to suspend my efforts in favour of more pressing work necessitated by German activities in March. In the meantime, however, I went through my records and arrived at certain tentative views. My list was, I thought, too small to allow of conclusions therefrom; it was, however, so significant that I meant to continue it, but no opportunity ever offered.

Since Major H. B. Day's article on War Nephritis in THE LANCET of Nov. 16th, 1918, I was so struck by the manner in which my records compare with his, and the way in which his new observations strengthen the views to which I was inclined after analysing my cases 12 months ago, that I here refer to them. (See table.)

Cases 1 to 12 inclusive were cases of acute nephritis—the so-called "war" or "trench nephritis." They all had œdema, dyspnœa, cough, bronchitis, bronchiolitis, and albuminuria, which persisted during their stay here, of from 4 to 13 days and during their febrile and afebrile periods. Their blood pressures were raised and their daily quantity of urine reduced. Most of them at one time or another showed naked-eye evidence of blood in their urine. Only some of the urine specimens of the later cases were sent for microscopic examination, as it was considered unnecessary further to confirm the diagnosis of acute nephritis based on the clinical aspect alone. The urines examined were found to contain various granular, granulo-leucocytic, and hyaloleucocytic casts. Doubtless an examination of the urine from the earlier cases would have shown similar findings. In general, the curve showing quantity of urine excreted in 24 hours rose, whilst those showing blood pressures, temperature, and percentage of albumin fell, and vice versa. Cardio-vascular manifestations of possible old renal lesions were sought for but not found. The nephritis in these cases overshadowed the trench fever (when this was present) and dominated the picture.

Cases 13, 14, and 15 would, on the other hand, have been evacuated as cases of acute (and uncomplicated) trench fever had not an examination of their urine revealed the nephritis by showing the presence of albumin, red cells, and granular casts. In these cases, however, it is the trench fever that is predominant and is seen in its true colours. Taking into consideration the mode of onset, the man's complaints (e.g., shin pains, worse at night), the enlargement and behaviour of the spleen, I consider that 10 of these cases (Nos. 1, 3, 6, 9, 10, 11, 12, 13, 14, and 15) are also suffering from trench fever.

There are certain diagnostic criteria that I would like to consider in more detail:—

(A) *Those on which in January to March, 1918, I relied in making a diagnosis of trench fever.*

History.—The history of events which happened before the patients were admitted here was obtained from their own statements and by questioning, as no clinical notes of value accompanied them. The difficulty, therefore, of eliciting the history and its reliability vary in some measure with the patient's intelligence. The onset in all these cases was definite, generally sudden. Sometimes a coryza or cough was the first complaint, and I must here crave permission to deny the view that respiratory catarrh is absent in cases of trench fever, and that its presence or absence is one of the criteria in the differential diagnosis between influenza and trench fever. The presence or absence of this feature depends—as far as my experience goes—on the weather. Whilst cases of trench fever are admitted during the warm weather without respiratory troubles, similar cases sent in during the wet and

cold weather almost invariably have some slight cough, coryza, or bronchial affection, and are then often admitted as "bronchitis," "influenza" or even "N.Y.D. (?) Phthisis—note the slight evening pyrexia."

During the inquiry into the previous illnesses special attention was paid to closely questioning about the occurrence of odd or occasional attacks of "rheumatism" or "myalgia," or symptoms such as "fainting," "hot and cold shivers," all pointing to transient febrile states, as I feel convinced that any or all of these may be manifestations of a trench fever infection in one or other of its forms.

Splenic enlargement.—With regard to splenic enlargement as a physical sign in trench fever, I found (September–October, 1916) that out of a series of 141 cases admitted here as trench fever, P.U.O., myalgia, or influenza I could feel the splenic edge in 40 of them (that is, 30 per cent.). Even a larger percentage number had what I thought, from percussion, an enlarged but non-palpable organ. Some of these cases, although clinically trench fever, might possibly have belonged to the enteric group, and with a view to excluding this possibility I applied the atropine test (described by Major H. F. Marris) to 54 cases—a somewhat generous margin. Out of 31 cases I found after 1/40th gr. atropine 17 of them "positive" to enteric. Out of another series of 23 cases, after 1/33rd of a grain of atropine, I got 7 positive. In this latter series the stools were examined bacteriologically with negative results. Although none of the cases were controlled by the agglutination curve (apparently the only way of diagnosing the prevailing atypical enteric infection), I do not believe that so large a proportion of cases (1 in 2 or 1 in 3) were due to the enteric group; I rather discredit the atropine test in this connexion and include trench fever with the enteric group among the cases that will answer positively.

The men I spoke to about splenic enlargement as a physical sign in trench fever were, at that time (September–October, 1916), unbelieving or sceptical, but when the British Trench Fever Committee (St. Pol) published their report (in the autumn of 1917, I think) remarking on splenic enlargement, general credence was gained for this as a physical sign.

Temperature.—Acute trench fever.—The type is of the well-known relapsing form—i.e., out-and-out pyrexial. Between this and the temperature chart of a case of subacute trench fever it is possible to get almost any variation and irregular pyrexia.

Subacute or chronic trench fever.—Men who suffer from this condition generally exhibit what I have called a low-geared pyrexia. If such men have their temperature charted every four hours or oftener it will be found that, although the maximum may be for days together wholly below 98·4°, yet the diurnal variation most days will be more than two and sometimes as much as three or even four degrees. Sometimes the curve will, unexpectedly, shoot up to 102° or 103° and fall again to 95° or 96°, all in the course of a few hours. These evanescent bursts of fever are characteristic of this type of infection.

Considered as a whole, the temperature is quite unstable, and the curve, although usually below the 98° to 99° mark, has an unsteady appearance, as if something had thoroughly upset the regulating mechanism. It will be found that the man's sufferings correspond with his temperature, and they are worse for the short period that his temperature is at its maximum. (See Chart I.)

The man's complaints.—These are so varied, especially when one includes those of men suffering from the subacute fever, that for practical purposes it is only the pains, particularly the shin pain—generally worse at night—that can be relied on as a help in diagnosing trench fever in the presence of acute nephritis. It is, however, well to remember that trench fever (acute and subacute) may affect all the limbs and both upper and lower segments. The limb pains synchronise with the rise of temperature, which is often (*a*) of not more than three or four hours' duration, and is missed if the temperature be not recorded every four hours or oftener; (*b*) trifling in amount. In the acute cases it may not be more than one degree or so, and in the subacute cases may not even reach 98·4°, but the chart in these latter cases will be what I call of the "low-geared" variety.

Tenderness.—To moderate pressure of the fingers this always occurs at the site of the pain after the latter has lasted two or three days or less.

(8) *Diagnostic criteria adduced (by others) since I formed my tentative conclusions on these cases 12 months ago.* Reconsidering my cases in the light of these newer observations, I find they support the diagnosis of trench fever made at that time in certain of these cases.

(1) *The phasic variation in splenic size.*—In January–March, 1918, whilst paying attention to the behaviour of the spleen in cases of war nephritis, I noticed the manner in which its size varied with what I took to be relapses of the underlying trench fever. It was not until the later cases that I was cognisant of this periodic variation in size and able to chart it on my records. At that time I was ignorant of the significance of the variation and merely satisfied myself that the organ was enlarged.

Since then Major Day has explained to me what I had failed to realise—viz.: (*a*) That the splenic enlargement marks in trench fever the occurrence of a relapse and is a much more constant sign of the relapse than a rise of temperature; indeed, the former may occur without the latter. Major Day regards this variation in splenic size as the best single clinical sign in acute trench fever. (*b*) When this splenic enlargement occurs in a man suffering from both war nephritis and trench fever there is always an interrupted diuresis. On the other hand, a febrile bout due to a cause other than trench fever—e.g., a lung complication—has little effect on the diuresis. (See charts of Cases 6, 11, 13, and 15.)

Discussion.

Considering the cases of acute nephritis in which there was also evidence of trench fever, it is difficult to be sure of the date of onset of the former. To mark a definite epoch I asked for the time of the appearance of the "swelling," and in these cases this was from two to ten days after what I consider the onset of the trench fever. The onset of all these cases, except possibly No. 9, was certainly pyrexial, and, as in cases of nephritis, œdema is nearly always the sign marking the onset, I am inclined to yield to the temptation of saying that in these cases two to ten days after the onset of a pyrexial illness—which subsequently proved to be trench fever—nephritis supervened. The elimination of toxins was an acknowledged factor in the ætiology of a pre-war nephritis, and so to subscribe to this view of these cases would not be so great a heresy as at first sight might appear. Which is the father and which the son, or whether the trench fever and the nephritis should be regarded children of a common parent I cannot tell. I merely know that out of 15 consecutive cases of war nephritis I have found 10 in which the two conditions were associated.

The three cases (Nos. 13, 14, and 15) in which the nephritis was not "full blown" are an illuminating sidelight on this association. The tempting assumption is that in certain adverse conditions these three cases also would have progressed so far as to show œdema and the other characteristics of the matured war nephritis.

What may be the incidence of nephritis in the trivial, almost unheeded, febrile conditions of civil life I do not know, but it has been stated that the summation of their effects on the kidney was almost undoubtedly a causal factor in the appearance of chronic interstitial changes of later life, and I presume that any infection—although maybe trivial in itself—might be enough to set up an acute nephritis in a susceptible kidney or in one already damaged by preceding febriculæ.

The problem then comes to this: (1) Can trench fever give rise to trench nephritis? From analogy with other fevers, from known or believed views regarding the ætiology of nephritis and from observation of actual cases, I am inclined to say "Yes." (2) Which of the fevers capable of giving rise to nephritis has the greatest incidence out here? I reply "trench fever."

The cases of this fever that occur out here are so numerous and the infection appears to be capable in some men of remaining for so long in its subacute (and often unrecognised) phase, that if it can be shown that the cases which give rise to nephritis form even only a small percentage of the total, this small figure, when converted into a percentage of the total cases of trench nephritis, will, I feel certain, amount to something considerable.

The nephritis occurring during the course of scarlet fever is essentially an acute glomerulitis which may develop in cases of this fever which have throughout been tended in the best possible surroundings. The seat of the lesion in

trench nephritis is also, I believe, the glomerulus, and if it be imagined that scarlet fever were as prevalent as trench fever and capable of assuming the subacute, smouldering, and cryptic form of the trench fever infection, and that sufferers were exposed to the adverse surroundings and circumstances that our soldiers in France have had to face, should we be surprised if scarlatinal nephritis assumed almost epidemic proportions?

Is it not possible, then—is it not even probable—that this trench fever which some systems appear to have such difficulty in throwing off may enter very largely into the ætiology of nephritis as seen out here. Am I to say that these ten men whom I noted were suffering from acute nephritis and trench fever—a two-fold diagnosis like this would always be looked upon askance—or am I to say that these men were suffering from an acute nephritis which had amongst its symptoms and signs those commonly ascribed to trench fever. Are we to believe we have two new diseases both occurring in very large numbers until we have excluded the possibility of their being one and the same?

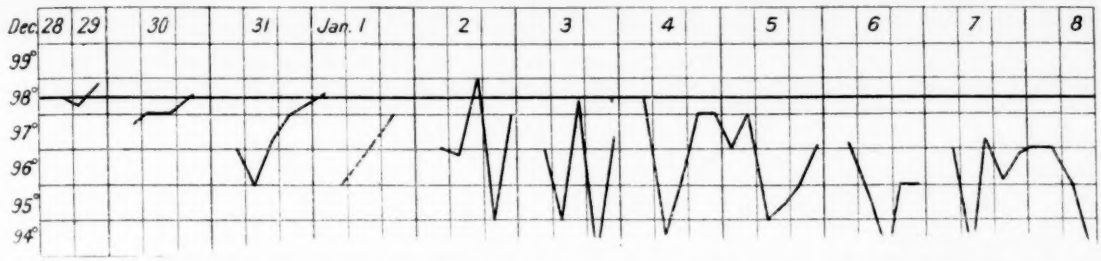
Since I analysed my cases 12 months ago the American Red Cross Commission on Trench Fever have shown the virus

Fifteen Consecutive Cases of Acute Nephritis admitted to 58th Casualty Clearing Station in January–March, 1918.

Case.	Onset.	Before admission. Days.	Before admission. Swelling.	Previous illnesses.	Army.	B.E.F.	Days under observation.	Temperature.	Age.	Spleen.	Pains (*a*). Tenderness (*b*).	Urine. On admission. Oz. in 24 hrs.	Urine. On admission. Albumin.	Urine. On transfer. Oz. in 24 hrs.	Urine. On transfer. Albumin.	Blood pressure. On admission.	Blood pressure. On transfer.	? Trench fever.
1	Cough, short of breath. Pains head, back, worse nocte. ? Pyrexia.	14	Feet, testicles. 7	Nil. No P.U.O.	8 ms.	6 wks.	5	Irregular. 99°–96·8°.	41	Felt.	(*a*) Shins. Worse nocte. (*b*) Shins.	20	¾ 1·6	55	¾ 0·2	72 96	?	Yes
2	Short of breath; "off colour." No pyrexia.	11	Face. 7	,,	7 ms.	13 wks.	9	One day's bout. ? Lung.	40	Normal.	(*a*) No limb pains. (*b*) Nil.	22	0·2	55	Tr.	?	?	No
3	Short of breath. Thirst. Thigh pains nocte. ? Pyrexia.	3	Legs. 3	,,	19 ms	2 ms.	11	3 peaks at 3 and 2 day intervals.	29	Enlarged to percussion. Not felt.	(*a*) Lumbar, "ankles." (*b*) Lumbar, "ankles."	14	1·5	92	0·8	160 114	146 108	Yes
4	Headache.	2	Face. 1	"Cramps" nocte for 2 months. No P.U.O.	12 ms.	9 ms.	6	Normal.	19	? Normal.	(*a*), (*b*) No.	30	Tr.	82	Tr.	146 90	128 96	No
5	Cough. Esp. nocte.	8	Face. 4	P.U.O., Oct., 1917. "Bright's disease" 28 yrs. ago. "Pneumonia" 12 yrs.	18 ms.	5 ms.	4	,,	42	Enlarged to percussion. Not definitely felt.	,,	68	0·1	99	Tr.	174 135	150 95	No
6	General pains. Esp. head, chest, hips, thighs. Short of breath. ? Pyrexia.	10	Face. 6	Nil. No P.U.O.	24 ms.	8 ms.	10	See chart.	36	See chart.	(*a*) Head, hips, front of thighs. (*b*) Shins after 2nd peak of fever.	30	1·2	120	0·2	194 100	124 63	Yes
7	General pains "No use in my legs." ? Pyrexia.	10	Face. 8	,,	7 yrs. 6 ms.	7 ms.	6	Once. 99·5° only.	33	Normal.	(*a*) Occasional pains whole thigh and leg. (*b*) Typical the day after pains.	40	1·0	60	0·2	225 118	191 116	? Yes
8	General pains head, back, and calves. Shivers. ? Pyrexia.	7	Face. 7	,,	24 ms.	9 ms.	13	Irregular.	22	,,	(*a*) Occasional headache only. No limb pains. (*b*) Nil.	48	1·0	68	0·3	180 124	144 97	? No
9	Coryza. Cough.	6	"Eyes." 3	,,	10 ms.	3 ms.	8	Falling, with one small ? relapse.	18	Enlarged to percussion. Felt decreasing in size after fall of fever.	(*a*) Stiffness of legs. No œdema. (*b*) Nil.	30	3·0	86	0·3	165 65	135 50	Yes
10	"Cold on the chest." Aching all over. Shivers. ? Pyrexia.	6	Face and legs. 4	Inflam. of lungs. Age 21. Indefinite history of shin pains nocte.	15 ms.	2 ms.	8	2 peaks with 3-day intervals.	39	Not felt. Enlarged to percussion. Shows periodic variation.	(*a*), (*b*) Shins.	22	1·2	63	Tr.	180 103	125 78	Yes
11	Pains "small of back," worse nocte. ? Pyrexia.	23	Face, hands, ankles. 13	Indefinite. History of lumbago. S.F. ? as a boy.	15 ms.	2 ms.	11	See Chart.	39	See Chart.	(*a*) Head, back, shins. (*b*) Shins.	48	0·6	148	0·1	178 96	146 90	Yes
12	Cough. Short of breath. Pains head, back, thigh, and shins. "Hot and cold shivers." ? Pyrexia.	21	Face. 14	Nil. No P.U.O.	3 yrs. 6 ms.	2 yrs. 3 ms.	9	Two small bouts with 5-day intervals.	28	Felt. Shows periodic variation.	(*a*) Head. Abdomen. No limb pains. (*b*) Nil.	102	0·6	74	0·2	175 115	135 85	Yes
13	Coryza. Pains, head and back.	8	No œdema.	"Dropsy," Mar., 1916. "Nephritis," Nov., 1917.	6 ms.	6 wks.	9	See chart.	37	See chart.	(*a*) Head, back, then shins. (*b*) Shins.	40	0·3	115	Tr.	110 65	103 75	Yes
14	Cough. Malaise. Shivers. Pains all over. (?) Pyrexia.	2	,,	"Pneumonia," Jan., 1916.	2 yrs. 9 ms.	7 ms	9	Two peaks followed by irregular fever.	30	Felt. Shows periodic variation.	(*a*), (*b*) Shins.	52	Tr.	45	,,	115 70	118 65	Yes
15	Malaise. General pains. Shivers. (?) Pyrexia.	7	,,	"Neurasthenia and bronchitis," Feb., 1915.	24 ms.	2 ms.	7	See chart.	30	See chart.	(*a*) Ankle and knees. (*b*) Some shin tenderness.	40	0·1	48	0·3	128 78	112 68	Yes

Tr. = trace.

CHART 1.



Illustrative temperature chart of subacute trench fever, showing a "low-geared" pyrexia with a maximum diurnal variation of 4·4° F. This man had suffered ever since he was invalided to England, 19 months previously, on account of "rheumatism."

CHART 2 (CASE 6).

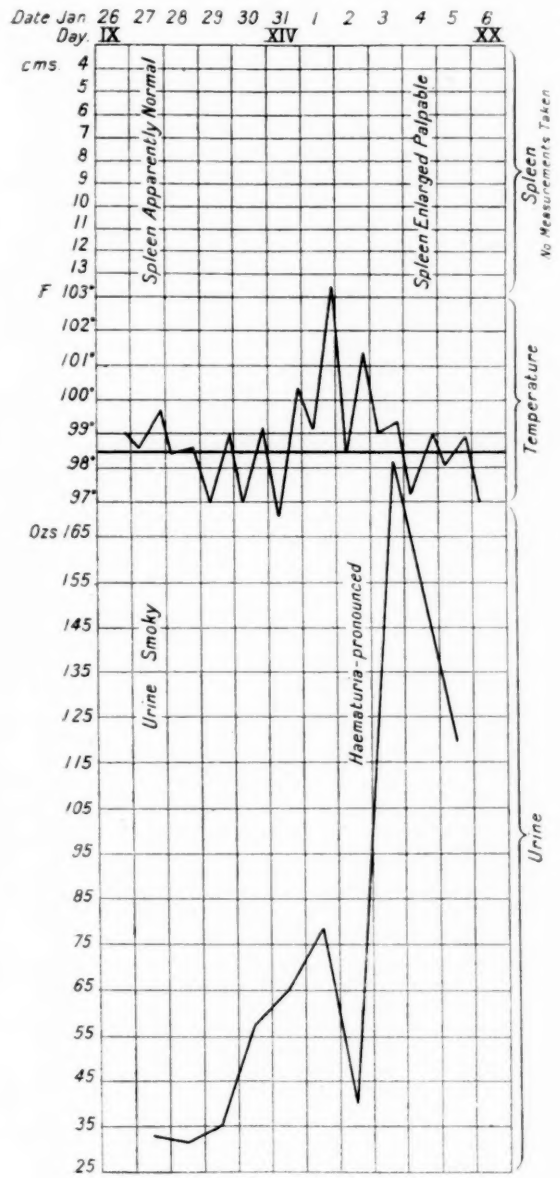

Date Jan. 26 27 28 29 30 31 1 2 3 4 5 6
Day IX XIV XX
cms. 4 5 6 7 8 9 10 11 12 13
F 103° 102° 101° 100° 99° 98° 97°
Spleen Apparently Normal
Spleen Enlarged Palpable
Spleen
No Measurements Taken
Temperature
Ozs 165 155 145 135 125 115 105 95 85 75 65 55 45 35 25
Urine Smoky
Haematuria-pronounced
Urine

CHART 3 (CASE 11).

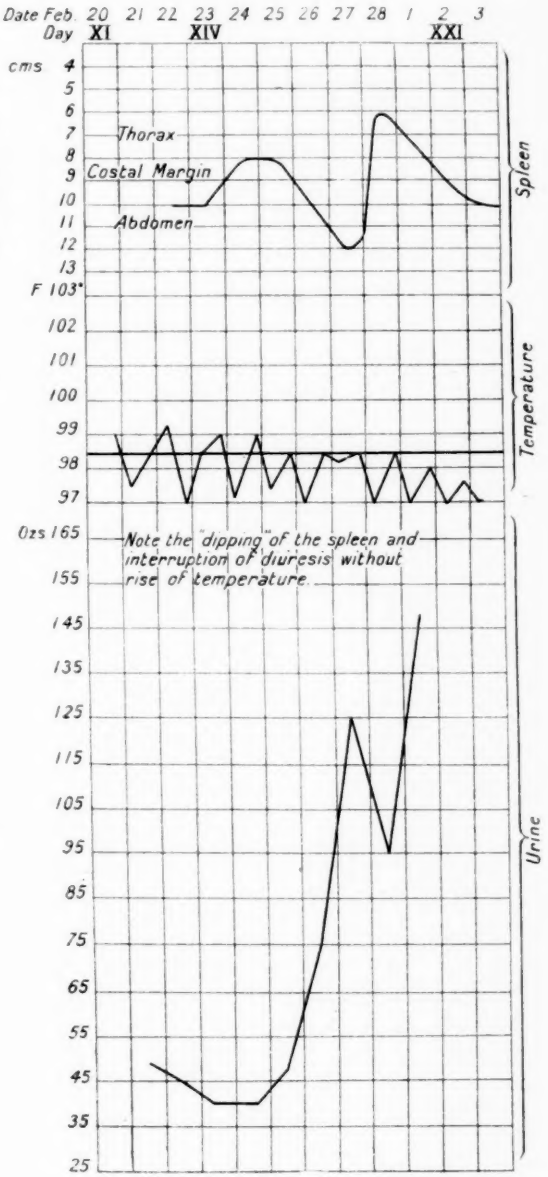

Date Feb. 20 21 22 23 24 25 26 27 28 1 2 3
Day XI XIV XXI
cms. 4 5 6 7 8 9 10 11 12 13
Thorax
Costal Margin
Abdomen
Spleen
F 103° 102 101 100 99 98 97
Temperature
Ozs 165 155 145 135 125 115 105 95 85 75 65 55 45 35 25
Note the "dipping" of the spleen and interruption of diuresis without rise of temperature.
Urine

CHART 4 (CASE 13).

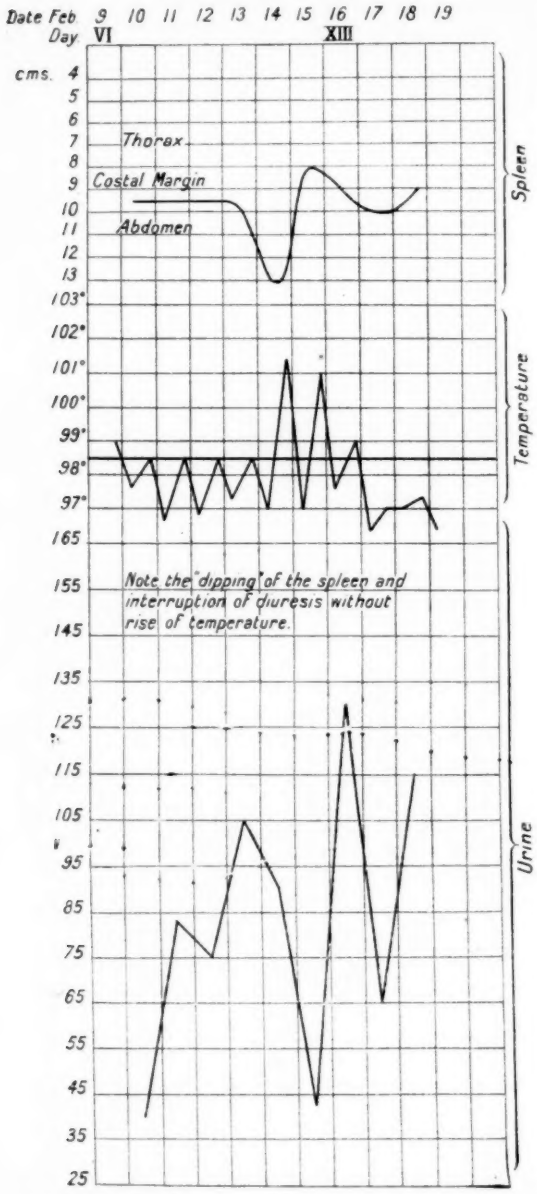
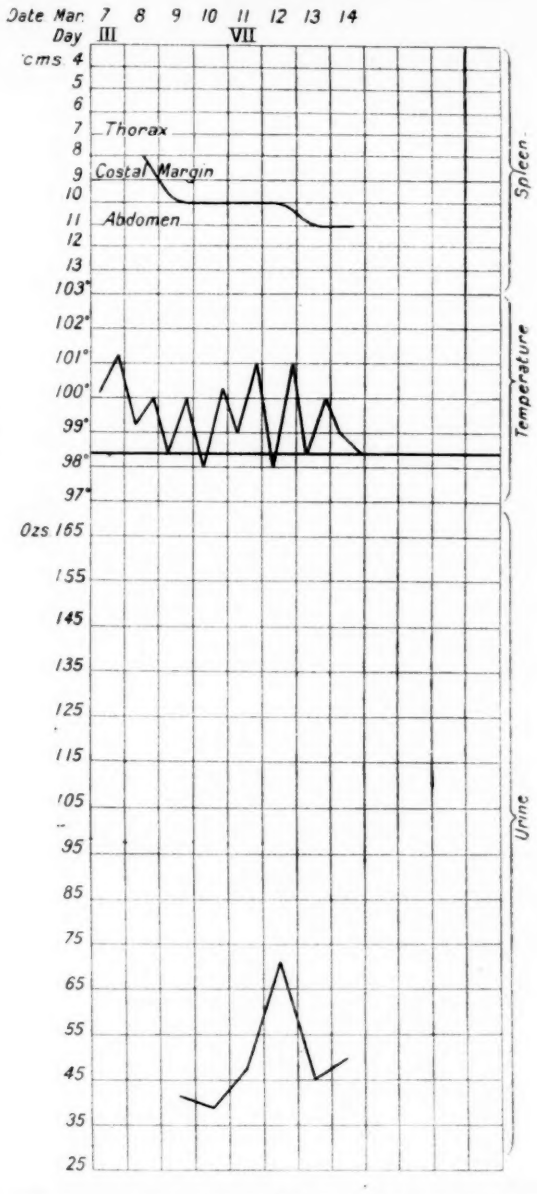

Date Feb 9 10 11 12 13 14 15 16 17 18 19
Day VI XIII
cms. 4 5 6 7 8 9 10 11 12 13
Thorax
Costal Margin
Abdomen
Spleen
103° 102° 101° 100° 99° 98° 97°
Temperature
165 155 145 135 125 115 105 95 85 75 65 55 45 35 25
Note the "dipping" of the spleen and interruption of diuresis without rise of temperature.
Urine

CHART 5 (CASE 15).



may be present in urine. This, to put it in the mildest manner, does not alienate a possible causal relationship between trench fever and war nephritis. Again, Captain H. Maclean, after a thorough investigation, concludes that there is some factor at work which makes a soldier in France more prone to kidney disease than his comrade in a training camp at home. I suggest trench fever, especially in its subacute and more or less neglected form, for place of honour in this connexion. Captain C. P. Symons tells me that whilst investigating urines of trench fever patients he found microscopic blood far oftener than he expected, and suggested that a large number of typical cases should be worked through and controlled to see if the general impression that more cases of trench fever than of other diseases showed urinary microscopic blood. This has not, as far as I know, been done, but would be a valuable investigation.

My own tentative views, put shortly, are :—

(1) That trench nephritis is not a disease sui generis, but is merely a complication to which (probably inter alia) trench fever can give rise.

(2) That the number of cases occurring is greatly increased : (*a*) By the large percentage of men out here who carry in their systems the virus of trench fever in one or other of its phases. (*b*) By the conditions to which these men were exposed.

(3) That the difficulty of recognising the trench fever in the presence of acute nephritis depends: (*a*) On the manner in which even an acute trench fever appears to be overwhelmed, masked, and modified by the onset of nephritis, which thereafter dominates the picture. (*b*) On the presence of trench fever originally in the subacute phase, which even in uncomplicated cases has so often been unrecognised.

I beg permission to anticipate some of the arguments that are likely to be brought against these views.

(1) My cases are "too few on which to found a convincing argument." I grant this and merely publish them

as they were sufficiently numerous to suggest to me the possibility of trench fever as a causal agent in the occurrence of certain of the cases of war nephritis, and in the hope that they might interest others who would bend their energies to solving the problem.

(2) "The incidence of trench fever is so very large that it is only reasonable to expect that some of the victims will also develop nephritis." (*a*) The incidence of war nephritis is (or was until recently, curious to say) also very large, and it is the large number of both diseases that suggests an inter-relationship. (*b*) It may be reasonable, but it is not usual, to find two diseases active at the same time in the same person without having some close relation—closer than is implied by a "lowered resistance" brought about by the first disease to attack; and as close perhaps as the development of endocarditis in a person suffering from rheumatism. The development of orchitis in a man suffering from mumps is not sufficiently explained by saying that so many cases of mumps occur that it is only reasonable to expect some of them to develop orchitis.

(3) It has been suggested that "the special type of trench fever" that develops hæmaturia may really be "an aberrant form of trench fever." Is the special type of syphilis that develops a tabo-paresis an aberrant form of syphilis? These "special type" cases of trench fever that I have seen—very many—were aberrant in no particular. They were the classical common type of trench fever plus a bloody urine. If an inspection of the urine were omitted they would undoubtedly always be sent on as "trench fever."

(4) "No nephritis developed in 50 cases to whom trench fever was experimentally transmitted." Did any of these cases march with a full pack, eat an ordinary meat ration, and sleep in a wet dug-out, and how carefully were urinary changes sought for?

(5) "The presence of trench fever cannot be proved, for there is no authentic test for it." Neither was there any authentic test for the presence of syphilis or enteric fever when their protean manifestations were unerringly brought home to them.

(6) "The incidence of trench fever does not run parallel to that of war nephritis. The fever is increasing, the nephritis receding." There are too many unknown factors and conditions for this argument to hold. The better diagnosis that has resulted from the work done on trench fever and the D.G.M.S. circulars is probably one of these factors. The earlier diagnosis of these cases, whilst increasing the apparent incidence of trench fever, reduces the number of formerly unrecognised and uncared-for cases that would probably have gone to increase the incidence of nephritis.

I should not have trespassed so much had it not been for the importance of the views I have endeavoured to set out as a possible working hypothesis, and I write in the hope that others more able than myself may be tempted to investigate them with the object of raising them to something more stable than a mere hypothesis.

My thanks are due to Colonel J. Graham Martin for his permission to publish these cases.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF SACCULATED ANEURYSM OF THE ABDOMINAL AORTA.

BY H. A. HAIG, M.B., B.S LOND.,

CAPTAIN, R.A.M.C.(T.C.); FORMERLY BACTERIOLOGIST AND PATHOLOGIST TO —— GENERAL HOSPITAL, E.E.F.

THE following case of sacculated aneurysm of the abdominal aorta, with erosion of dorsal vertebræ, and rupture of the aneurysm through the diaphragm leading to hæmothorax and sudden death, occurred at No. —— General Hospital, E.E.F., during 1917, and seems to be worthy of record.

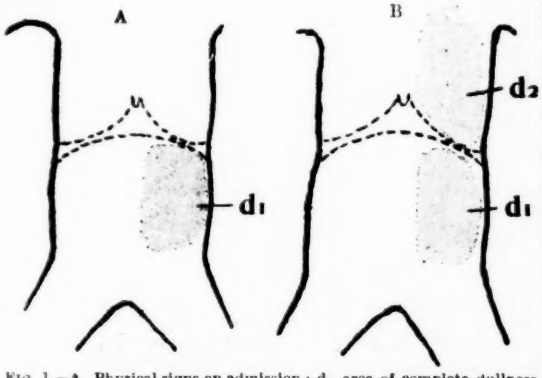


FIG. 1.—A. Physical signs on admission; d_1, area of complete dullness and on palpation a fixed tumour with no pulsation. B. Condition just before death; d_1, original area of dullness unchanged; d_2, area of dullness due to a sudden pleural effusion.

Account of Case.

Pte. —— was admitted to hospital with symptoms suggestive of malaria, the physical signs with regard to the splenic area and left side of abdomen being (1) almost complete dullness over the left hypogastric and iliac regions; (2) absence of pulsation; (3) on palpation a large tumour, which seemed fixed and did not move with the respirations. This tumour was provisionally taken to be the enlarged spleen. (See Diagram I., A.) Two days later the patient developed a *sudden* left-sided pleural effusion (see Diagram I., B.), and died in about ten minutes.

The post-mortem findings were as follows (see Diagram II., C. D.). 1. The left pleural cavity was filled with soft recent red clot, which weighed approximately 1 lb. 14 oz. 2. The abdominal aorta showed two aneurysmal dilatations—i.e., a small one on the right side close to the aortic aperture in the diaphragm, and a relatively enormous

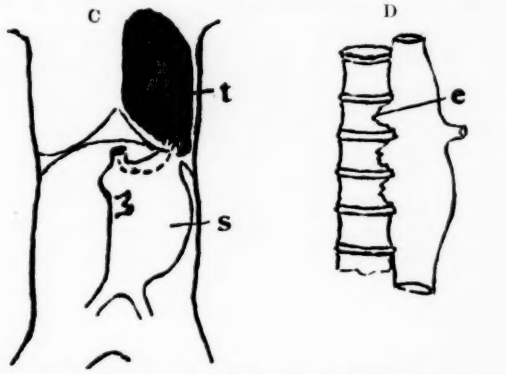


FIG. 2.—C. Main post-mortem findings; s, sac of aneurysm, adherent above to under-surface of diaphragm (the arrow indicates the course of the blood from aorta through perforation in diaphragm into left pleural cavity); t, large hæmothorax (clot). D. Erosion of dorsal vertebræ by aneurysm.

left-sided sacculated aneurysm which filled the left side of abdominal cavity. The latter aneurysm was adherent above to the diaphragm, and upon opening the sac it was found that perforation of the diaphragm had occurred, a communication between the upper part of the abdominal aorta and the left pleural cavity being thus established. The cavity of the sac was filled with partially organised, and in the centre more recent, clot. 3. The ninth, tenth, and eleventh dorsal vertebræ had been deeply eroded by the aneurysm. 4. The thoracic aorta and the undilated part of the abdominal aorta showed numerous areas of atheroma in the endothelium and subendothelial layers, and the first part of the arch of the aorta showed an aneurysmal dilatation which would later have developed into the sacculated type.

Remarks.

The perforation of the diaphragm and subsequent sudden pouring of blood from the aorta into the left pleural space did not lead to any disappearance of dullness from the abdominal tumour, owing to the fact that, as was established post mortem, the sac was almost entirely filled with organising clot. The case is interesting clinically as showing that, apart from laparotomy or death, the nature of this tumour would have remained in all probability undiagnosed for some time. Nothing, of course, could have been done

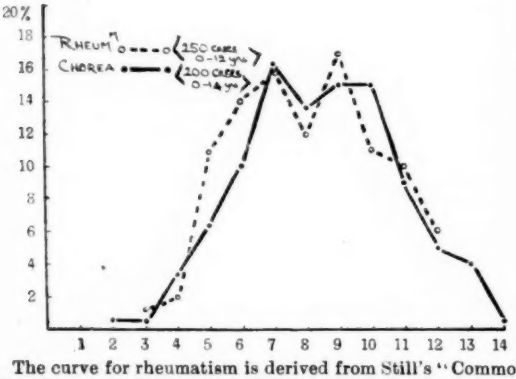
for such a condition, the aneurysm being probably one of the largest on record.

My thanks are due to Colonel H. E. R. James, C.B., R.A.M.C.

A NOTE ON THE RELATION BETWEEN CHOREA AND RHEUMATISM.

BY H. L. CRONK, L.R.C.P. LOND., M.R.C.S.,
LATE CAPTAIN, ROYAL ARMY MEDICAL CORPS.

THE relationship between chorea and rheumatism in childhood is shown in a striking manner in the accompanying figure.



The curve for rheumatism is derived from Still's "Common Disorders and Diseases of Children," where the graph is upon an analysis of 250 cases with an upper age-limit of 12 years. That for chorea was prepared from the materials contained in the histories of 200 unselected cases of the disease, at ages from 2–14 years, seen in the children's out-patient department at St. Bartholomew's Hospital.

NOTES ON A CASE OF "IDIOPATHIC TETANUS"; RECOVERY.

BY W. B. COSENS, M.R.C.S., L.R.C.P.,
MAJOR, R.A.M.C.; HONORARY SURGEON, DORSET COUNTY HOSPITAL.

A MALE patient, aged 44, consulted me in view of an operation for hæmorrhoids. Examination showed a ring of hypertrophied skin and veins occupying the whole of the muco-anal margin, but not extending beyond the mid-point of the sphincter area. Urine was normal. The operation was performed at his residence, Vernon's method being adopted, the ligated margin being dabbed over before and after the operation with freshly made tincture of iodine. On the fifth day he complained of some stiffness in the muscles of the neck; this was much increased on the sixth day, there were also pain and increased tension in the lower abdomen; by the eighth day the muscles of face, neck, chest, abdomen, and adductors of thigh were in a state of tonic spasm. Owing to enforced absence, I did not see him on the fifth, sixth, and seventh days, and thus valuable time had been lost. On the twelfth day the general symptoms were slightly in abeyance. Up to the sixteenth day his condition was most serious; violent muscular contractions occurred almost every 15 minutes, involving the whole body; laryngeal spasms were severe, and at times his life was despaired of; there was complete retention of urine, and the passage of a catheter set up general convulsions. The appearance of the wound seemed normal. Chloroform was administered frequently to relieve the convulsions, and antitetanus serum and muscular injections of carbolic acid were administered as stated below. The last general convulsion occurred on the nineteenth day, but seemed more apparent than real, the patient having developed a "terror" that one was coming.

Personal history.—With the exception of complete paresis of one lower extremity, due to infantile paralysis, there is nothing to record. A possible sidelight as to the causation of the disease was that he had recently attended a patient who shortly after developed tetanus.

Treatment.—On the 8th day after operation an injection of 1000 units of antitetanus serum was given intramuscularly. On the 12th and 16th days 500 and 2000 units, respectively, were given intrathecally; on the latter day combined with 500 units intramuscularly. On each of the 17th, 18th, 19th, 20th, and 22nd days, 1500 units were given intramuscularly. Total quantity of serum, 11,500 units. A hypodermic injection of 10 minims of a 5 per cent. solution of carbolic acid was given every two hours throughout this period.

Remarks.—Undoubtedly the bacillus of tetanus was in the intestine. Bacteriological examination of the catgut used at the operation proved it to be sterile. I had not seen, and the nurses in attendance had not had the care of, any infected person. I regret that a culture was not made from the discharges in the region of the anus; the struggle and anxiety to keep my patient alive is my excuse for overlooking this interesting factor. The efficiency of the serum was undoubted, while possibly the injection of carbolic and the administration of chloral by mouth helped. The intrathecal injections, compared with the intramuscular, quickly relieved tension of muscles and demonstrated the more rapid action of the remedy, as shown by the marked reaction, lasting 24 hours. To-day, 18 months since the operation, he is in better health than he had been for several years. My personal responsibility was greatly lessened by valuable assistance received from Dr. G. G. Morrice and Dr. B. W. N. Gowring.

Criticism.—The delay in commencing treatment was a misfortune. Considering the violence of the symptoms, an intrathecal injection should have been given at the commencement of the disease. The very marked reaction prevented its use more often. The value of the carbolic injection, and administration of chloral is problematical, whereas the intrathecal injection of serum left no doubt as to its efficiency when rapidity of action is required.

A LONG-RETAINED FOREIGN BODY IN BRONCHUS.

BY A. W. LEMARCHAND, M.R.C.S., L.R.C.P. LOND.

THE following case is of interest as the foreign body—a rabbit's vertebra—remained in a bronchus four years before being expelled by coughing.

In August, 1915, a middle-aged woman of 50 was eating her dinner, consisting of rabbit and vegetables, when "something went the wrong way." She was seized with dyspnœa and cough. After a few weeks the following symptoms became chronic and did not change. Spasmodic cough and dyspnœa. There was constant expectoration, which tended to settle in three layers, as in bronchiectasis. She was always a little husky. Percussion was always slightly against her left apex in front, over a space about the size of the palm of the hand under the left clavicle. No breath sounds were heard over this area. She had one or two attacks of slight bronchitis during the following four years which accentuated her symptoms. An X ray examination did not reveal any foreign body. In April, 1919, after a violent fit of coughing, she brought up a cervical vertebra of a rabbit. This was white, quite dry, and complete except for one transverse process; a little blood was coughed up—about half a teaspoonful. Within 36 hours all cough, dyspnœa, and expectoration had ceased. Air was heard to be entering freely all over the "dumb" area.

The bone is in St. Bartholomew's Hospital museum. On looking at it dry, stripped of all "meat" covering, one wonders how it got past the vocal cords on its upward journey.

WORTHING HOSPITAL.—The governors of Worthing Hospital, at the annual meeting on Sept. 26th, approved of a scheme for the provision of a maternity ward, wards for paying patients, and a general surgical ward as a war memorial. Other business included the alteration of a rule allowing three women to sit on the committee of management.

A WAR MEMORIAL HOSPITAL.—At a public meeting held at the Town Hall, Chipping Sodbury, under the presidency of the Duchess of Beaufort, it was decided to erect a war memorial hospital for Chipping Sodbury and the district. £1250 has been promised, and a committee has been elected to raise the necessary funds.

Reviews and Notices of Books.

The Style and Literary Method of Luke. Part I. The Diction of Luke and Acts. By HENRY J. CADBURY, Associate Professor of Biblical Literature and of Greek, Haverford College. Cambridge: Harvard University Press; London: Humphrey Milford. 1919. Pp. 72. 5*s.* 6*d.*

THE first part of this treatise, which forms No. VI. of the Harvard Theological Studies, is concerned with a matter with which it is outside our province to deal—namely, a purely textual criticism of the language of the Acts of the Apostles and of the Gospel according to St. Luke. But the latter portion of the work deals with the question of the alleged medical language employed by the writer of the third Gospel. It is in the main an examination of the work by Dr. W. K. Hobart, published in 1882, entitled "The Medical Language of St. Luke," in which the author endeavoured to show, and—according to many scholars such as Ramsay, Chase, Zahn, and Harnack—was successful in showing, that the language of the third Evangelist had a distinctly medical tinge, although in reviewing Dr. Hobart's book at the time of its appearance we felt that the author proved too much. Professor Cadbury, however, argues that "the question that presents itself, therefore, is not whether there are many parallels between the diction of Luke and that of the medical writings, but whether these parallels are more numerous or more striking than those which can be found in non-professional men writing with the same culture as Luke and on similar subjects." And he applies a test which, although he allows that it gives incomplete results, yet shows that there is no striking difference between St. Luke's use of medical terms and those of at least one non-professional contemporary, the contemporary in question being Lucian. A general examination of Lucian's works showed 300 medical words which are also to be found in Hobart's list of 400 medical words in St. Luke, while a more particular examination of three books of Lucian—namely, the Alexander, the second part of the True History, and the Pergrinus, forming in all a work about half the size of The Acts, and the Third Gospel contained 115 of Hobart's 400 words. Professor Cadbury therefore considers that the use of the medical words cited by Hobart is not enough to enable us to argue that St. Luke was necessarily a medical man.

Anæsthesia and the Nurse's Duties. By A. DE PRENDEVILLE, LL.B., M.R.C.S. With an Introduction by Sir JAMES CANTLIE, K.B.E., F.R.C.S. Eng. London: William Heinemann (Medical Books), Ltd. Pp. 100. 3*s.* 6*d.* net.

THIS manual is intended to provide such information in anæsthetics as should be required by the nurse. The treatment of this subject, as the title states, is on somewhat novel though certainly needed lines. The idea of this desirable addition to the training of a hospital nurse originated by the authorities of Charing Cross Hospital deciding in 1915 that lectures on anæsthetics should form part of their curriculum. The interest these lectures created led the author to publish them, although he did not live to see his book issued. He starts out with the object of interesting his audience by some remarks on pain and an historical sketch of the discovery of nitrous oxide gas, chloroform, and ether. The preparation of the patient for the anæsthetic, the points to be noted by the nurse during and after operation, and the various inhalation methods are gone into. Spinal and local anæsthesia are mentioned. The chapter on the preparation of apparatus might with advantage be greatly extended. Emphasis should certainly be laid on the correct coupling up of the bellows to a Junker bottle. Additional attention on the part of the nurse, as well as that of the anæsthetist, might prevent the occasional accident which has happened through the bellows being attached to the delivery tube. The fixing up of nitrous oxide and gas oxygen apparatus, the need for washers in the union joints, the reassembling of a Hewitt gas oxygen chamber, the undesirability here of filling up the oxygen holes with the powder used to clean it, the replacement of worn or curled up valves, the taking to pieces of a Clover inhaler—all these are points which might be referred to with advantage. In general this little work will prove a useful guide.

In a leading article in THE LANCET of Sept. 27th we dealt with the proposition that the administration of anæsthetics should be part of the nurse's duties, and were quite unable to support it, but this does not mean that we do not see the advantages of such training for nurses as Dr. de Prendeville instituted at Charing Cross.

JOURNALS.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., LL.D., F.R.S. Vol. LIII., Nos. 1 and 2. Cambridge University Press. 1919. Pp. 1-146 + pp. liii. 10*s.*—The Influence of the Nervous System on Glycæmia and Glycosuria, by J. Mellanby. The majority of the experiments were done on cats either anæsthetised or decerebrated after preliminary anæsthetisation. The urine was collected by means of a cannula tied directly into the bladder. It was found: (1) That urine obtained experimentally from anæsthetised animals contains dextrose whatever the anæsthetic used. This glycosuria is associated with hyperglycæmia, which may amount to 0·6 per cent. of dextrose in the blood. (2) The factors responsible for the hyperglycæmia and consequent glycosuria are (*a*) the anæsthetic and (*b*) afferent nerve stimulation by operative procedure, afferent nerve stimulation being much the more potent. (3) Urine from decerebrate animals contains dextrose, and this glycosuria is associated with hyperglycæmia. (4) If the entire brain of an animal be destroyed, then, after the initial hyperglycæmia and glycosuria due to the anæsthetic and operative procedure have passed off, the urine subsequently secreted contains no dextrose. (5) After the urine of a spinal animal has been freed from sugar afferent nerve stimulation or anæsthetics no longer cause hyperglycæmia and glycosuria. (6) The continued glycosuria of the decerebrate animal compared with the transient glycosuria of the spinal animal cannot be assigned to differences in the blood pressure between the two animals. The author explains these facts on the hypothesis that the sugar content of the blood is under the control of some portion of the brain situated between the cerebrum and cord. The glycæmic centre is discharged by impulses passing to it by an afferent nerve and inhibited by impulses from the cerebrum. Removal of the cerebrum from the control of the animal either by experimental decerebration or by anæsthetics causes the overaction of the glycæmic centre with consequent hyperglycæmia and glycosuria.—Observations on Cyanide Anoxæmia, by C. Lovatt Evans. The author's object was to ascertain whether such doses of cyanides as temporarily inhibit respiratory exchange owe their physiological effects solely to the production of a sudden anoxæmia. The mode of action of cyanides is discussed and the following conclusions arrived at: 1. While large doses of cyanide are irreversibly toxic, doses of the order needed greatly to depress the oxygen metabolism appear to exert all their physiological effects by reason of the anoxæmia which they produce. Such doses would be about 0·5 mg. of sodium cyanide per kg. intravenous for the cat or a concentration of *m.*/200–*m.*/500 for the excised frog or mammalian tissues. 2. Anoxæmia produced by the administration of cyanides differs from that caused by exposure to or respiration of indifferent gases in the extreme suddenness of the onset and the slowness of resolution; otherwise the effects appear to be identical as regards plain, striated, and cardiac muscle, nerve and nerve centres, and general physiological effects. 3. The response of the vascular system to adrenalin or to splanchnic excitation, and of the heart to vagus excitation, are reduced or abolished in extreme anoxæmia.—The Reaction and Carbon Dioxide Carrying Power of Blood: A Mathematical Treatment, Part I., by T. R. Parsons. The theoretical interpretation of the state of combination of carbon dioxide in the blood is still so obscure that the author's mathematical investigations are welcome. In a system composed of carbonic acid and one other weak acid, with a fixed total amount of sodium distributed between them, it was found that the CO_2 dissociation curve of blood is identical with that possessed by such a system. The proteins of the blood constitute the second weak acid, which shares with the carbonic acid the available sodium of the blood. The relative importance of the various blood proteins in this connexion is undecided, but it is likely that by far the most important part is played by hæmoglobin. The concentration of the "available" sodium was calculated, and it was found that oxygenation does not change this concentration. The whole of the combined CO_2 of the blood is in the form of bicarbonate, but the proteins present in the blood confer on it a property which a pure solution does not possess, namely, that of forming an efficient carrier for CO_2.—The Response to Respiratory Resistance, by H. W. Davies, J. S. Haldane, and J. G. Priestley. It is well known that the breathing adapts itself

to increased resistance, such as that produced by various lung affections, use of respirators, mine-rescue apparatus, &c., but, so far, no very definite investigations have been made as to how the adaptation is brought about and at what point it begins to fail. This investigation partly fills the gap. The experiments were made on man, the subject breathing through a modified form of the special apparatus usually employed for determining respiratory exchange. The authors summarise their results as follows: 1. The normal response to respiratory resistance is slowing and deepening of the breathing. 2. With excessive resistance the respiratory centre begins after a time to become fatigued, and the breathing, as an equally natural consequence, becomes shallowed and more frequent. 3. Anoxæmia hastens greatly the onset of fatigue and the ease with which it is produced. This explains the characteristic action of anoxæmia in producing relatively shallow and frequent breathing. 4. As shallow breathing itself is both a result and a cause of anoxæmia, a vicious circle of a very dangerous kind is apt to be produced by anoxæmia or any other cause which tends to impair the vigour of the respiratory centre. The immediate cause of death, therefore, in many cases, is due to failure of the respiratory centre.—Studies in the Regeneration of Denervated Mammalian Muscle. I., Volume Changes and Temperature Changes; II., Effect of Massage. By F. A. Hartman, W. E. Blatz, and L. G. Kilborn. It is known that one of the immediate results following section of a nerve to a muscle is a dilatation of its blood-vessels, with increase in the volume of the limb; the temperature of a muscle is also increased after denervation. The authors studied the volume changes in anæsthetised cats (urethane) by means of a plethysmograph. As to volume changes, the maximum dilatation of the limb occurs from two to six hours after denervation. The extent of this dilatation is probably a little more than 2 per cent. of the total volume. In some individuals constriction of the denervated limb begins soon after the maximum dilatation has been reached. In others constriction may not begin for a few hours after this time. Complete recovery of the original volume occurs in many cases within 24 hours. There may be an "over-recovery" as time goes on. Constriction of the denervated limb may take place without a proportionate lowering of the limb temperature. Concerning temperature changes, the duration of the increased temperature resulting from denervation is exceedingly variable. In many cases there is an "over-recovery" of the temperature. This occurs from a few days to several weeks after denervation. Increased circulation and fibrillation do not seem to account entirely for the maintained supernormal temperature of a denervated limb. The effects of massage were studied on rabbits. Without going into details, it would seem that the authors' observations indicate that massage of denervated muscle is slightly beneficial. Further observations are promised.—Vaso-motor Centres. Part I.: Effect of Strychnine on Blood Pressure in the Spinal Animal, by J. N. Langley. The opinion generally held to-day appears to be that strychnine has little direct action on spinal vaso-motor centres. Experiments made on decerebrated and curarised cats after section of the spinal cord show that if the excitability of the cord is not decreased by feeble circulation a large rise of blood pressure is caused by a small amount of strychnine (0·5–1·0 mg.). The maximum rise obtained is nearly as great as that obtained in the bulbo-spinal animal. Thus the theory that all vascular reflexes are bulbar falls to the ground. Strychnine causes a quick and large rise of blood pressure in the decapitated cat after excision of the suprarenal glands. The difference between the amount of strychnine which causes no rise of blood pressure and that which causes a maximal rise is small. After a large rise of blood pressure has been produced by about 1 mg. of strychnine, subsequent injections cause a small and decreasing rise followed by a fall below the original level until the effect becomes trivial. When the effect has become trivial and the blood pressure is raised by adrenalin or by stimulation of the spinal cord, the injection of 10 or more milligrammes of strychnine may cause a quick primary fall of blood pressure. The fall so produced is of peripheral origin. When repeated small amounts of strychnine are injected, no large rise is produced by any subsequent amount. It is inferred on the theory that strychnine stimulates some central nerve cells, that the degree of stimulation depends upon the rate at which strychnine is taken up, and that when successive small amounts are given it is gradually taken up nearly to saturation point. The centres causing muscular movement and those causing rise of blood pressure are not connected in the spinal cord.

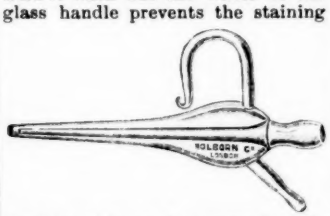
There are also contributions on the following subjects: The Response of Human Sensory Nerves to Currents of Short Duration (E. D. Adrian); A Study of Season Changes in Avian Testes (Alexander Watson); A Simple Photographic Method of Registering Vertical Movements on a Horizontal Plane (D. S. de Waard); Neuroglia and Non-medullated Fibre in Nerves (Winifred Parsons); Acquired Tolerance for Alcohol in the Frog's Heart (Fred Ransom).

In the *Military Surgeon* (Washington, D.C., U.S.A.) for August Captain Shivers describes the administrative measures taken in a large camp in New Jersey in order to deal adequately and speedily with each of the 350 to 400 venereal cases seen daily. Every needed diagnostic aid was available, and when the patient's history and treatment had been succinctly recorded he received prescription and treatment without possibility of evasion. The patients were formed into battalions and divided into platoons according to the severity of their disease. The first platoon (acute cases) remained in bed; the second platoon (improving) were allowed up, and did the arm movements of physical drill; the third platoon did arm and half of the leg exercises; the fourth platoon did all the exercises, and were not sent to duty till they had been well for a fortnight. Complications are reported as rare.—Major Herbert Fox gives a very interesting account of measles epidemics in another large camp, this time in Kentucky, between October, 1917, and November, 1918, aggregating in five waves some 3000 cases. The first outbreak—October to December, 1917—consisted of 970 cases, including serious pneumonia (8 per cent.) and empyema, mainly due to the pneumococcus. The second outbreak—in March, April, and May, 1918—comprised 414 cases, of which 13 per cent. developed pneumonia, due mainly to the hæmolytic streptococcus which occasionally even gave rise to septicæmia. The cases in the summer and early autumn were numerous but slight. In September, October, and November, 1918, there were 865 cases; 13 per cent. of these developed pneumonia, and more than a third of these died. The pneumonia on this occasion was due mainly to the hæmolytic streptococcus, but also to the pneumococcus (generally Type IV.). In November two different epidemics, measles and influenza, were prevalent independently. The sharp rise in measles preceded that in influenza by a fortnight, but the influenza epidemic reached its maximum immediately, and was over before the measles epidemic (which took five weeks to develop) attained its peak. The mortality curves were also independent. The measles mortality was highest in the first four weeks (particularly in the first fortnight, before the influenza had appeared at all), while the influenza mortality was still rising when that from measles had begun to fall, and did not reach its climax till ten days after the epidemic itself had begun to fade. As to prevention, sheets were hung across dining tables to prevent men coughing into one another's faces, entertainments were held as much as possible in the open air, and the men's work was lightened. The most beneficial change was to lay the responsibility for a man "going sick" not on him, but on the medical officer, who had to inspect all the men of his group every day. Men were thus isolated when they first began to be ill, and, indeed, before they themselves realised they were ill. Pneumonia decreased when all cases had their throats swabbed weekly and all carriers of *Streptococcus hæmolyticus* (46 per cent. of all cases) were isolated in special "infected" wards.

New Inventions.

A NEW URETHRAL ALL GLASS TWO-WAY IRRIGATING NOZZLE FOR GONORRHŒA.

THE instrument shown in the illustration has been designed by me to allow a free stream of the irrigating fluid to wash out the whole of the anterior urethra. The glass handle prevents the staining of the patient's hands when permanganate of potash is being used.



The urethral end of the instrument should be greased with lubafax (Burroughs, Wellcome and Co.) and inserted for one inch. The nozzle is attached to the irrigation jar by flexible tubing and a stopcock. The jar may be raised up to six feet in height and pressure may also be increased by telling the patient to block up the exit pipe with his first finger. It has proved by long experience to be one of the most effective nozzles for irrigation in acute gonorrhœa. The nozzle is made by the Holborn Surgical Instrument Company, 26, Thavies-inn, London, E.C.

A. C. MAGIAN, M.D.,
Hon. Surgeon, Manchester French Hospital;
Manchester. Hon. Surg., Wood Clinic for Genito-Urinary Diseases

THE LANCET.

LONDON: SATURDAY, OCTOBER 11, 1919.

An Experiment in Public Medical Service.

THE Ministry of Health is now in being with three out of four advisory committees appointed. But the Medical Services Bill, which will define its executive powers, has yet to be framed, and now is the time for consideration of the many schemes brought forward. No pronouncement has yet been made on the question of what is generally known as the State Medical Service. Of course, the Ministry of Health is at the head already of an important State service of steadily increasing scope, including medical officers of health, Poor-law doctors, the School Medical Service, the medical staffs of infant welfare and venereal clinics, to which will doubtless be added within a short time the asylums medical staff. In another sense, insurance practice is a State service. And the conception of a State Medical Service has suffered much from loose thinking and from looser expression, many people disregarding these various activities on the part of the State, speaking as if some new form of State organistion would, or should, replace them. It may, therefore, not be amiss to study with care a scheme for a Public Medical Service, issued by the Glasgow Fabian Society,[1] and worked out accurately and painstakingly in relation to local conditions by Dr. DAVID MCKAIL, lecturer on forensic medicine and public health at St. Mungo's College, Glasgow, and Mr. WILLIAM JONES, clerk and treasurer to the Glasgow Burgh Insurance Committee. Of the fitness of the two authors for their task nothing further need be said. They begin by criticism of the present insurance practice which, from their point of view, carries its own condemnation in the failure to provide any form of institutional treatment, and in its limitation to insured persons, who form only about one-third of the total population. They propose to build up a complete medical service ensuring unrestricted treatment for every citizen who may require it, involving the enrolment of the medical profession and the public control of general hospitals and infirmaries.

Along this path many have gone before them, but a concrete basis was afforded for Dr. MCKAIL'S and Mr. JONES'S scheme by the war shortage of medical help, when for a time dispensaries were established in Glasgow for centralising the patients of absent doctors. A report, drawn up in 1915 by the local branch of the British Medical Association, divided the city into a number of districts of convenient limits. The first table in the author's pamphlet shows the population of these districts and the number of doctors having consultation rooms within them. In the Whitevale district, with a population of some 50,000, a consultation centre was established in a large and commodious hall which worked with complete satisfaction to all concerned during the time of its operation. Bridgetown, of approximately 100,000 inhabitants, is taken as the actual object of the study, the authors regarding a hundred thousand as a convenient unit for a comprehensive scheme. The volume of sickness is then studied for this sample population. The bulk of medical attention to insured persons is, quite naturally, required by persons of the later age-groups, and the analogy of comparative mortality figures at various ages has enabled the authors to estimate the volume of sickness to be expected. The annual number of dispensary visits to be anticipated per unit of population works out at 3·11, varying from a maximum of 7·50 at ages 0 to 1 down to 1·32 at ages 15 to 25, the rate per unit at ages 45 to 65 being 4·96. Domiciliary visits are reckoned for the area concerned at one-quarter the number of dispensary visits. The staff required to deal with this known volume of work is then calculated. It is assumed that on the average each medical officer will overtake a minimum of ten consultations or four visits per hour, and, allowing for a 33-hour working week plus a turn of orderly duty as required, the medical staff numbers 27; 25 per cent. is then added for the known seasonal increase of sickness occurring in the early spring months, a personnel of 33 all the year round providing for release at an annual holiday in the summer or autumn months without the need of appointing temporary substitutes. The next calculation shows the average number of births in the sample population to be between 9 and 10 per day with little seasonal variation. Two visits at least to all parturient women implies a further addition of four to the medical staff. Minor ailments are to be dealt with in the general section of the dispensary, and as far as possible in the mornings, the whole of the accommodation being available in the afternoons for nine special subdivisions—namely (1) minor surgery and orthopædics, (2) diseases of the eye, (3) diseases of the ear, throat, and nose, (4) skin diseases, (5) tuberculosis, (6) venereal diseases, (7) electrical and X ray treatment, (8) special diseases of women, and (9) maternity and infant welfare. It is assumed that of the medical staff to be appointed nine would possess such special knowledge or skill in one of the departments specified as would qualify them for appointment as senior medical officers. On the same basis of a 33-hour week this implies a further addition of five to the medical staff, making a total of 43 in all, excluding institutional and consultant service. In proportion to experience and responsibility the medical staff is graded as junior medical officers (of at least five years approved service), medical officers, and senior officers—the latter 10 in number, nine of whom are attached to their appropriate sections, the remaining one being in charge of the general section of the dispensary and acting as deputy superintendent. A superintendent completes the staff. The short working week would afford ample time to the junior officers for post-graduate and special study with a view to advancement in the service. The remaining sections of the pamphlet deal with nursing, dental treatment, drugs and appliances, and institutional treatment in the same practical and well-informed manner. The cost of the medical and nursing staff, allowing for salaries of £500–£700 for the medical officers and £800–£900 for the seniors, works out at 6*s.* 5½*d.* per head per annum, allotting 3*s.* 0½*d.* for general treatment (including tuberculosis), 1*s.* 9½*d.* for infant welfare

[1] To be obtained from the Fabian Society, 25, Tothill-street, London, S.W. 1, or from Geo. Allen and Unwin, Ltd., London Price 1*s.*

and married women, 1s. 1¾d. for maternity attendance, and 5¾d. for special treatment. The authors point with emphasis to the fact that this figure, while including very much more than the general practitioner service of insurance practice, is still below the 7s. capitation basis. Later it is shown that dental treatment, drugs, and administration will bring the figure up to 8s. 1¾d., while 4s. 9½d. is still to be added for institutions, making a grand total of 12s. 10½d. per head per annum. This in the city of Glasgow would amount to a charge of 1s. 10d. in the £, imposed in the same manner as the public health assessment, divisible equally between owner and occupier. To set against this is the cost of medical benefit which would be saved, as well as that of special dispensaries for infant welfare, the treatment of venereal disease, the outdoor treatment of the pauper, and so forth. The long-suffering ratepayer would not be the loser thereby.

The pamphlet is remarkable alike for its almost bewildering abundance and accuracy of data and for its quaint phrasing and scriptural instance. Its signal merit consists in the possibility it suggests of putting theory to the severe test of working conditions. Concerning the "free choice of doctor," the authors point out that this cannot operate with the establishment of dispensaries, and it appears that since the inauguration of the panel system in 1913 the Glasgow populus has done little enough to exert any free choice. Doctors whose rooms were on the main streets acquired on that ground much larger panels than colleagues living around the corner. Practically no use has been made of the fresh choice of doctor allowed at the end of the year, and in the few instances of transfer this has been made for reasons other than personal dissatisfaction. Thus the public medical service suggested has no avoidable drawback for the patient. For the doctor the limitation of hours and guaranteed adequate income are achieved by avoiding the waste of time and energy in connexion with existing practice. In the summer of 1915 it was the fact that half-a-dozen doctors' motors could often be seen in the same neighbourhood that suggested the establishment of consultation centres, and in Scotland, as elsewhere, two practitioners may each travel a considerable distance over the same road to attend two or three patients in an outlying village. Comprehensive treatment for the patient, reasonable conditions of work for the doctor, and economy for the ratepayer, are apparently all involved in the Glasgow scheme. It is difficult to avoid expressing the desire that the authors should have the opportunity of testing their own plan in the district in which they have worked it out. Success or failure alike would afford much-needed experience.

The Working Capacity of the Disabled Man.

THE general public, every whit as much as the medical profession, must be interested in the organised effort to repair the ravages of war, of which the full official title is, "A National Scheme for the Employment, on a Percentage Basis, of Disabled Service Men." The operation of the Workmen's Compensation Acts has directed the attention of medical men, as it has that of employers, to the possibility of finding, for a man disabled from following his normal calling, employment in the same business in some other capacity, for the manner and extent to which incapacity may be diminished with training and practice is now becoming known. Faced with the situation arising out of an estimated 5 per cent. of the total of the country's workers disabled through war service, the Ministry of Labour, with the coöperation of other Government Departments qualified to assist, has devised the scheme referred to above, and the King's Proclamation, read in places of worship on Sept. 21st, has impressed it in outline upon all. Employers of 10 or more workers are urged under it to include among their staff not less than 5 per cent. of disabled men, and are advised that the 100,000 still unemployed are largely unskilled men waiting to be trained and not an unemployable residue. We must all recognise the difficulty created by the fact that the men are unskilled, and that not all men so situated are capable of being trained successfully. Before the end of the war the Army and Navy together had gathered into their ranks men of all kinds, able-bodied indeed, but of all temperaments, grades of intelligence and of education, characters, and antecedents. It will be seen, therefore, that the success of the Government scheme must depend not only upon the goodwill and effort of the employers, and upon the coöperation of their able-bodied workmen, but very largely upon the energy and willingness of the disabled to make good under the trying and difficult conditions in which the war has placed them.

What, then, are the species of employment for which the disabled are best adapted? In our great trades and manufactures the conditions under which the men are employed depend so largely upon the regulations of the trade-unions that the responsibility will lie with these if any rigid adherence to customs imposed before the war prevents the disabled from training and working as welcome comrades side by side with their more fortunate fellows. It will only be in a proportion of the operations conducted by these trades, no doubt, that there will be room for men suffering from any kind of disability. Reference, however, to Lord WEIR'S speech at the opening of the International Shipping, Engineering, and Machinery Exhibition, printed at length in the newspapers of Sept. 26th, will show that there are in the industry of which he was speaking, that of the iron-moulders, then on strike, operations not necessarily confined to highly skilled and elaborately trained workers. Trade-unions may have restricted these operations to a limited class, but if Lord WEIR is to be relied upon they can be performed "by a girl or a limbless soldier after a few days' training." We may be treading upon ground which should be reserved for those familiar with trade-union regulations and technical experts, but we can hardly believe that the craft of a french-polisher is not one in which a one-armed man could hold his own, and it is evident that the one-armed, or the men who have lost fingers, will be those who in manufacturing industries will find even fewer openings than the legless, while in the present demand for furniture there must be a considerable opening for french-polishers. In many industries, which might be quoted but which will occur to the mind, the employment of the disabled should be possible without loss to the employer and without displacing other men. In retail trade, where more than 10 persons are employed in a single businsss, there are, no doubt, many tasks in which partial disablement will not incapacitate from usefulness, if we

assume the desire of employers and fellow-workmen to make the most of a man who is willing on his side to do his best. In large hotels and restaurants there is much for which an active man with all his limbs is a necessity, but there are many appointments of varying value in the clerical staff and general staff of such establishments—as, for example, in the kitchen—which could be filled by men unfitted by injuries from pursuing other callings. In hotels and restaurants, moreover, there are prominent and well-paid posts to which men can rise who have made themselves useful in humbler capacities. We are referring primarily to the clerical and checking work necessary for organisation when we mention the kitchens of hotels and restaurants, but we do not forget the demand for good cooks in a country where generally there is an idea that intelligent study of the culinary art is not a man's job.

Apart from the employers of labour who are specially invited at the present time to bring into their large staffs a percentage of disabled men, there is a considerable class of private employers of labour, and of small traders and manufacturers, who may, perhaps, be even better able to find room for the disabled with no great sacrifice on their own part. A letter from the Clerk to the Ministry of Health, enclosing the circular of the Ministry of Labour to the county councils, sanitary authorities, and Poor-law authorities, calls attention to a point which in the circular itself is emphasised with capital letters. "Disability pension should not be taken into account when computing a disabled man's rate of wage." This is perfectly just and right if it only means that the pension should not enable an employer to get a disabled man's services more cheaply than equal services rendered by a whole man, because the former draws a pension. That would be the equivalent of a Government payment to the employer. It can hardly, however, be intended to deter an employer, and a private employer in particular, from taking into account in some cases the fact that a man cannot do a whole day's work because of his incapacity. Bargains in such a case might properly be subject to official supervision, nor do we see any reason for supposing that all employers would be out for exploitation. The parties to such bargains might be excluded from any credit attaching to the carrying out of the official scheme, but it would hardly be unfair to pay liberally in proportion to the work done in the case of a man whose strength and skill were not equal to that of his normal fellows, with the knowledge that he was not suffering thereby. There are probably many medical men, particularly in the country, who would be glad to obtain the services of a disabled man for part of the day, and who would be well able to judge his capacity for work and perhaps to help to increase it, but who could not afford to remunerate him on the scale expected by a strong and healthy workman. It might be an act of charity to pay full wages as for a full day's work, but not everyone can afford to be charitable on such a scale. In any case, where a man is not employed single-handed, but is in company with others, the fact that he does conspicuously less than his fellows and is paid the same will be liable either to cause jealousy or to make the others slow down to suit the pace of the disabled. But, without refining further, it is clear that the first thing is to employ the disabled—to take the risk, if any, in the good cause. The employment of the disabled, particularly at first and until they have acquired the efficiency which training and practice will give them, will be an experiment the success of which will depend upon the goodwill of all engaged upon it. When, however, we remember the debt we owe to our fighting men, to those who have not survived to seek civil employment as well as to those who have lost limbs or health or eyesight in their country's cause, we feel confident that hearty goodwill will prevail over any difficulties that the experiment may present.

Conjugal Tuberculosis.

Dr. E. WARD'S contribution to this subject, which appeared in our issue of Oct. 4th, is not less interesting for being a redargution of the generally accepted view that the risk of infection with tuberculosis, as between husband and wife, is negligible. Since Dr. C. THEODORE WILLIAMS published, in 1882, his findings as to the infrequency of infection with tuberculosis among adults in daily contact with the tuberculous, a long series of similar investigations has been published bearing out his contention. SAUGMAN, who has collected data from many sanatoriums, came in 1905 to the conclusion that even among laryngologists, who are exposed to infection more than any other class, the morbidity and mortality from tuberculosis are comparatively low, and that owing to the immunity conferred by previous accidental inoculation with tuberculosis, "it is not dangerous for healthy adults to be coughed at by patients suffering from pulmonary or laryngeal tuberculosis." It is a significant fact that life insurance societies in Germany, basing their action on statistical evidence, do not reject persons because of a history of exposure to infection, or because they live with tuberculous consorts. MAURICE FISHBERG, in a recently published text-book on pulmonary tuberculosis, has collected a mass of evidence to disprove the thesis that one consort infects the other. As physician for many years to a charitable society, he has seen 800 to 1000 consumptives annually, and though they were living in poverty and overcrowded tenements, he seldom saw tuberculosis in both husband and wife. He argues that tuberculous infection can occur once only, and that as the non-phthisical consort has already been infected with tubercle bacilli during childhood, reinfection by cohabitation does not lead to phthisis. In other words, the risk on marriage is the same as when two persons, both of whom have already contracted syphilis, marry. Most if not all the investigations hitherto published on this subject refer to urban conditions. Dr. WARD'S figures refer, apparently, to a population that is mainly rural. Can it be that in a large proportion of his cases the consort of the tuberculous patient was "virgin soil," had, in fact, never harboured the tubercle bacillus till exposed to massive infection? Dr. WARD does not discuss the influence of poverty as a factor in conjugal tuberculosis. But it is sadly obvious that among the working classes tuberculosis in one consort implies overwork and underfeeding for the other. And as Professor KAYSERLING has remarked with reference to the enormous increase of tuberculosis in Germany during the war, the disease has come to be regarded by German physicians primarily as a consequence of malnutrition, to be controlled far

better by feeding than by preventing infection. We agree with Dr. WARD in regarding the problem of adult infection as most important. Indeed, the whole plan of campaign against tuberculosis hinges on this problem. For if every adult is in jeopardy of his life whenever he consorts with a consumptive, the prospect of stamping out the disease by separating the tuberculous from the non-tuberculous would seem hopeless. But if it can be proved that the only infection that matters is infection, especially massive infection in early life, then the problem of prevention is reduced to far less terrifying proportions, and the prospect of stamping out the disease is comparatively good.

Annotations.

"Ne quid nimis."

THE END OF THE STRIKE

THE cessation of the strike at the beginning of the week, if one may judge by reports in the lay press representing different sections of the community and different schools of political thought, was a triumph for everybody concerned. We must point out at the same time that this triumph was obtained only just before tragedy to the community might have occurred. How narrow the escape was is probably better known to medical practitioners than to any particular body of men, for in those days of stress all sorts and conditions of persons said exactly what they thought to their medical advisers. That throughout the nine days of unrest an almost unbroken spell of good weather prevailed, and that the incidence of epidemic notifiable disease happened at the moment of this sudden strike to be light on the population, are circumstances that all may be thankful for; and while neither the Government nor the National Union of Railway Workers can claim credit for the weather, the sanitary services of the country are entitled to point out that had their routine of duty not been in order the precipitate quarrel would seriously have endangered public health. How deeply the menace of the strike affected the population in general, despite the stoical and almost good-natured resignation with which the hardships were borne at the time, is shown by the languor of recovery manifested. The tension had been so great, that, even when the strike was over, relief was not experienced, and there were more gloomy visages on Monday last than at any time since the industrial disturbance. It is too early yet to attempt any estimate as to the actual damage done by the partial dislocation of medical service, but undoubtedly the excellent arrangements made by the Government for the distribution of food maintained the health of the country.

"IN NON-ESSENTIALS, LIBERTY."

Dr. Norman Walker is standing again as a Direct Representative of Scottish practitioners upon the General Council of Medical Education and Registration, of which he has been a member since Jan. 1st, 1907. As acting chairman of the Examination Committee he has been in close touch with the vexed problems of medical education, and the address which he has just issued to his electors recognises the necessity of reorganising the present methods of teaching, especially in the direction of giving greater importance to preventive medicine. His wise suggestion is to concentrate on unity in essentials, with much latitude for experiment in less important matters. He would add a fourth term of ten weeks in the later years of a medical student's career, even though it should involve additions to the teaching staff. He would extend the Council's inspection of the final qualifying examination so as to afford a substantial guarantee that all candidates reach a proper standard of practical efficiency. But in regard to the earlier parts of the curriculum he writes:—

> "If one school thought it best for its students to pass an entrance examination in chemistry and physics, and to complete their knowledge of these subjects for medical purposes in connexion with the physiology class; if another chose to associate toxicology with pharmacology instead of with medical jurisprudence; if another thought psychology (or logic) so important as to require one or more terms of study, I would leave them all free. And I would expect from the Council's inspectors most valuable reports as to which of the various methods—for they would all be reported upon to the Council—succeeded best in producing efficient practitioners of medicine."

Dr. Walker comments, as we also do in a leading article, upon the lack of any precise definition of what a State Medical Service consists in. Of the two ways, "along one of which events must inevitably advance," he rejects the whole-time staff of experts organised as a branch of the civil or the municipal service in favour of the acceptance by the medical profession generally of part-time service in coöperation with the State. Dr. Walker's views are those of the reformer mellowed, but not discouraged, by long contact with the actual things to be reformed.

THE TYPHUS EPIDEMIC IN EASTERN EUROPE.

EXANTHEMATIC typhus during the present year has been severely epidemic in Eastern Europe, particularly in Russia, Poland, and Galicia. The disease is endemic in each of these countries, but the Great War has supplied many favourable opportunities for spreading the infection as well as for enhancing its virulence, the result being a devastating and widespread epidemic. The disease has been prevalent of late in other States, including Austria, Hungary, Ukraine, Roumania, Bulgaria, Turkey, Greece, and Serbia. In Roumania, for example, during July and August no fewer than 17,720 cases were reported. Austrian prisoners of war conveyed the infection to Italy, and several serious local outbreaks have resulted; during May and June alone 5343 persons were attacked by typhus in Italy. In Germany the returning troops brought back the infection from Russia, but local outbreaks in Russian prisoners' camps in Germany had already been occurring, and these had involved both German soldiers and the civil population. Up to the end of July—that is, during a period of only seven months—more than 2500 cases of typhus had been recorded in Germany. Local outbreaks have also occurred in Holland, Norway, Sweden, and Finland, the infection having been imported from North Russia. There have been also prevalences of typhus fever in the large towns of Spain and Portugal.

But it is in Poland that the ravages of typhus have been the worst. The country had already, as also Galicia, been devastated by the belligerents during the previous years of the war; thousands of houses had been wrecked during the military operations, and the mines and factories and other industrial works had been destroyed which formerly had

afforded employment to the inhabitants. These unfortunate people, driven from their homes and their employment, with no effects but the clothes they wore, flocked into the large towns and intensified there the already existing overcrowding. Food supplies were scanty, doctors and nurses were in inadequate numbers to meet the calls made upon them, medical stores and disinfectants were practically unobtainable, hospital accommodation for the sick was not available, disinfecting or delousing apparatus could not be provided, and the shortage of fats caused a famine in soap. In these circumstances, and considering that many persons were living and sleeping in the same clothes for months, having no change of raiment, it is little wonder that infestation by body vermin became almost general. Even those people who had private means, and kept their bodies and clothing clean, also ran risks as lice were found daily in the railway carriages and tramcars. It was not surprising, therefore, that a widespread epidemic of typhus developed, especially in the larger towns, such as Warsaw and Lodz. It may be added that the war had left the sanitary administration of Poland in a chaotic state, and in consequence quite unable to cope with so formidable an outbreak of disease. While in 1916 and 1917 the reported typhus cases in Poland had been respectively 34,516 and 43,840, the number rose in 1918 to 122,000, and in the first half of 1919 to 99,251.

Although typhus is generally a disease of the colder months of the year the outbreak of 1919 maintained epidemic proportions during the summer months, and in all probability, unless effective action be taken, the incidence will be still more serious and the consequences still more disastrous in the coming winter. The sad plight of the Polish people came, during the summer, to the knowledge of the League of Red Cross Societies, which in August sent a commission, consisting of international representatives from the four Great Powers—namely, Great Britain, France, Italy, and the United States—to investigate the typhus epidemic and to draw up measures to suppress it; also to prepare plans for relieving the present sufferings of the Poles and to devise measures for preventing the spread of typhus to Western Europe. The cost of carrying out these objects will be heavy, for it will be necessary to provide doctors and nurses in sufficient numbers to meet the situation; hospitals will have to be erected, disinfecting apparatus purchased, as well as soap, medical supplies and equipment, as also food and clothing for the destitute. We understand that the League of Red Cross Societies is prepared to do all this, and in this connexion it may be observed that the chief objects of the League are "to coöperate with others in all measures for improving public health, to prevent disease, and to mitigate suffering throughout the world." No better opportunity could present itself for carrying out these objects than is now afforded by the unhappy condition of fever-stricken Poland. The inter-allied medical commission has now returned to Paris and has reported that the typhus epidemic has been very widespread and that the number of deaths has been very great. The campaign against the disease has not made much progress, however, owing to insufficient personnel and inadequate supplies; special want was experienced of sheets, blankets, drugs, and other essential equipment. It appears also that among the various maladies present just now in Poland another louse-borne epidemic disease, relapsing fever, is also prevalent. There has been some talk recently about the adoption of international measures at ports and on land frontiers in Europe to prevent the introduction of typhus into other countries, but the best means of preventing the spread of typhus is strict cleanliness of person and clothing, so as to avert any chance of infestation of the body by the louse, the incriminated transmitting agent of the typhus virus. The cessation of hostilities in Europe has set the Red Cross organisations free to carry out their humanitarian work and to become, for the present as regards Poland, the Good Samaritan of Europe.

TRANSMISSION OF TYPHOID FEVER BY THE MOTHER'S MILK.

IN the *Journal of the American Medical Association* of Sept. 20th Dr. H. Heiman has reported a case, which he read at the thirty-first annual meeting of the American Pediatric Society, of transmission of typhoid fever by the mother's milk:—

A married woman, aged 29 years, who was nursing an infant, was admitted into Mount Sinai Hospital, New York. Two weeks before she began to suffer from pain in the head and back, fever, and chills. Diarrhœa had been present for several days. The spleen was felt three inches below the costal margin and rose spots were present. The temperature ran the usual course, and in the fifth week of the disease gradually fell from 105° F. to normal. There was leucopenia; the leucocytes numbered 4200, with 68 per cent. of polynuclears and 32 per cent. of lymphocytes. The Widal reaction was positive and the blood contained typhoid bacilli. A culture of the breast milk revealed actively motile typhoid bacilli. Two days after the mother's admission the infant, aged 8 months, was taken to hospital. It had been breast-fed until two weeks before, when it was weaned because of the mother's illness. Four weeks before admission the temperature rose to 101°, but the infant seemed as well as usual. In 10 days it apparently recovered completely. But a sudden rise of temperature to 105° follows. Both ear-drums were incised, but the fever continued. There was no vomiting or diarrhœa. On admission the infant appeared acutely ill with rapid respiration and flushed cheeks. There were no rose spots. The spleen was enlarged, the lower pole being felt one inch below the costal margin. Blood examination showed 8000 leucocytes per c.mm., with 74 per cent. polymorphonuclears and 26 per cent. of lymphocytes. Blood culture revealed typhoid bacilli, and the Widal reaction was positive.

Dr. Heiman has been unable to find recorded any case of transmission of typhoid fever by the mother's milk. He has discovered, however, a case reported by C. H. Lawrence in the *Boston Medical and Surgical Journal* of July 29th, 1909, in which typhoid bacilli were present in the milk of a nursing mother, aged 23 years, who was suffering from the disease. But in this case the infant escaped infection.

THE TUBERCULOSIS CONFERENCE.

THE National Association for the Prevention of Tuberculosis is holding its seventh annual conference at the Central Hall, Westminster, on Thursday to Saturday of next week, Oct. 16th–18th. The first such conference was held in Whitechapel in 1909, and thereafter alternately in London and some large provincial centre, until the highly successful conference at Leeds in July, 1914, just before the war broke out. Since then no meeting has been held, and the reassembling after an interval of five years gains in importance from two considerations: (1) the extreme urgency assumed by the whole problem of tuberculosis during the war; and (2) the proposal of the British Red Cross to coöperate with the National Association in its peace-time activities in regard to tuberculosis. The conference will open at 10.30 A.M on Thursday, Oct. 16th, with

an address by Dr. Addison, Minister of Health. The sessions on that and the following day will be devoted to a discussion on the completion of tuberculosis schemes in relation to: (1) the Ministry of Health; (2) local authorities and Insurance Committees; (3) pensions boards; (4) general practitioners; (5) Red Cross and other voluntary activities; and (6) training of doctors and nurses. Distinguished visitors from France, Italy, and the United States are expected to take part. Lord Glenconner, Sir Arthur Stanley, and Sir Robert Philip are to occupy the chair in succession. The remaining session on Saturday morning, with Sir G. Sims Woodhead presiding, will be occupied by addresses on tuberculosis work for the Red Cross, the Order of St. John, and other voluntary workers. Social functions are being arranged for Thursday and Friday evenings, and all who are interested in the subjects under discussion will be gladly welcome.

AGGLUTINATION IN DYSENTERY.

THE observations contained in a paper published by Dr. A. Distaso, Dr. E. Goodall, and Dr. H. A. Scholberg, on the "Agglutination Results with Certain Dysentery Organisms Placed against Homologous and Heterologous Sera,"[1] form an important piece of work which deserves the close attention of others similarly engaged in the study of bacillary dysentery. The authors of the paper applied tests to 20 organisms in killed cultures, including 7 Flexner strains, 6 Shiga, 3 Y bacillus, 3 strains of Strong's bacillus, and an unknown organism not closely related to the dysenteric group. 1 c.cm. of a dilute suspension of the killed culture used in each test was injected into the ear-vein of a rabbit on two occasions at an interval of seven days. Seven days after the second injection blood was withdrawn from the rabbit and the serum tested against a suspension of the organism injected, in dilutions of the serum of from 1 in 50 to 1 in 500. The agglutinations were carried out macroscopically, the results being noted after the test-tubes had been kept in the incubator at 37·5° C. for 16 to 20 hours. It was found that 4 of the 20 organisms (20 per cent.)—a Flexner (original), a Shiga, a Y bacillus, and the unknown organism—were agglutinated by their corresponding sera in a dilution of 1 in 2000; 5 (25 per cent.), including 2 Shiga, a Flexner (typical), a Y, and a Strong's bacillus, were agglutinated in dilutions of 1 in 500; 9 of the tested organisms (45 per cent.) in dilutions below 1 in 500, but in 4 of these there was agglutination only in dilution of 1 in 25. Further, the 4 sera which agglutinated their homologous organisms in high dilution (1 in 2000) were tested against the 19 heterologous organisms, with the result that no agglutinations took place in 1 in 2000 dilution; in two instances only a positive result was obtained in 1 in 500 dilution, a Shiga serum agglutinating 6 of the 19 organisms (3 Flexner strains, 2 Y, and 1 Strong), and a Flexner serum (original) agglutinating two Flexner strains. A trace of agglutination, but very rarely a positive result, was obtained in some instances with low dilutions. Absorption tests which were applied to the two sera concerned showed that the agglutinin produced by the heterologous organism was the same as that produced by the homologous organism. The authors' results and those to which they allude: of Florand, Bezançon, and Paraf (1918), who found that 26 bacteria of the dysenteric group were not agglutinated by any serum or only in 1 in 200 or lower dilutions; of Lancelin and Rideau (1918), who reported that agglutination with Flexner and Shiga-Kruse organisms when obtained, was only in low dilutions (1 in 150 and 1 in 50)—raise the important question as to how far agglutination tests are reliable as a means of identifying and classifying dysenteric organisms.

It is evident that we are still far from the true explanation of these puzzling anomalies, and even maybe from the correct interpretation of agglutination results and laboratory classification of the whole group of dysentery bacilli. The observations recorded bear out, but do not explain, the difficulties encountered and problems raised by the discovery of inagglutinable strains familiar to most laboratory workers. The results of further investigations promised by the authors, and those of others with similar experience in agglutination phenomena, will be awaited with interest, and in the meantime we hope that their observations may stimulate fruitful research and criticism. A clarification of the response to agglutination tests yielded by the various strains of the Flexner group has been attempted by means of diagrammatic representation. The total agglutinin content elicited by the whole group may be shown as a square divided into sections of varying size according to the amounts of specific agglutinins corresponding with the individual members of the group; the prevailing strain occupying the larger portion of the square, and the other strains, in proportion to their prevalence, the remaining sections of the square. A similar type of mosaic diagram representing a number of component agglutinins might be made use of to signify the more puzzling phenomena presented by the inagglutinable strains and those which either excite but llttle response or yield agglutination results not true to type—e.g., those instances quoted in which a Shiga serum agglutinated both Flexner and Y bacillus, indicating the coexistence of more than one specific agglutinin belonging to a different group. Such conditions may be described as analogous to the complex properties of chemical bodies. The composite agglutinin "molecule," called forth by the whole dysenteric group, may be capable of being split up into a number of "atoms" corresponding to the individual dysentery strains of the whole group, and the readiness of response to agglutination of the members of the group might be taken to vary according to the strength of the bond existing between the component parts or "atoms" of the agglutinin "molecule" contained in the particular serum. Some such help in visualising the complicated processes which underlie agglutination is much needed by the average thinker.

[1] Journal of Pathology and Bacteriology, 1919, xxii., 257-261.

GROUP STUDY IN OPHTHALMIC RESEARCH.

UNDER the above heading Dr. F. Park Lewis read a paper before the Ophthalmological Section of the American Medical Association last June[1] on a subject which for long has been felt, both in America and in this country, to be one of primary importance, not only to ophthalmologists, but to the whole medical profession, and indeed to the public at large, though as yet hardly any steps have been taken to remedy the evil complained of. The practice of specialism is justified by the particular

[1] Journal of the American Medical Association, June 28th, 1919.

skill acquired by specialists in dealing with disorders affecting special organs, and in a great number of cases the specialist is well able to complete both diagnosis and treatment by himself. On the other hand, nearly all cases in which the diagnosis is difficult require knowledge and skill outside any one particular specialty. Almost all diseases of the fundus oculi are examples of this. Dr. Lewis writes:—

"The failure on the part of scientific medicine to locate the essential origin of many serious diseases is tending to lessen public confidence in medicine as a whole, and the time has come when we as physicians must reorganise our methods of practice, or means will be taken by the public, if not on the part of the State, to direct them for us, with results that may be equally disastrous for the public and for us."

Instances will occur to all general practitioners of patients able to pay generous medical fees in whom diagnosis was missed owing to lack of coöperation between various consultants, the real importance of the bearings of the findings of each being overlooked. Even for the poor who are able to obtain admission into hospitals coöperation between different institutions is by no means so good as it ought to be, while, as Dr. Lewis forcefully says, for the mass of the people whose resources are moderate there exist no methods, except through professional courtesy, by which complete investigations can be made of cases that are obscure. This is a strong indictment of our present methods. It was originally addressed to ophthalmologists, whose specialty is perhaps more closely bound up with all other branches of medicine and surgery than any other, but obviously it concerns all branches of the profession. Not only for diagnosis and treatment is coöperation urgently necessary. Without it very little scientific advance is to be expected. The causes of cataract and glaucoma, the nature of the changes which produce detachment of the retina, are problems of pathology which will never be solved by investigations that go no further than the orbit. The necessity for coöperation is admitted. How best to attain it is a practical problem that cries out for solution.

A NEW SCHOOL OF BOTANY.

BOTANY considered as a comprehensive branch of science has not received the attention which it deserves both as a department of biology and as a means of augmenting the supply of food and drugs. During the war, however, recognition of its importance was forced upon us, and the work which has been done by the War Committee of the Royal Society, by the Natural History Department at South Kensington, and by separate investigators, played no inconsiderable part in the scientific organisation which the great world-war necessitated. We welcome, therefore, the report of the committee which was appointed in April last by Lord Ernle, President of the Board of Agriculture, to consider what steps should be taken to improve the usefulness of the Royal Botanic Society of London. This committee consisted of Sir David Prain, F.R.S., director of the Royal Botanic Gardens, Kew (chairman); Sir W. H. Dunn; Sir A. Keogh, Imperial College of Science and Technology; Sir Malcolm Morris; Major R. C. Carr; Mr. Morton Evans, joint secretary of the Office of Woods; Mr. H. J. Greenwood, L.C.C.; and Professor F. W. Keeble, F.R.S., Board of Agriculture and Fisheries and Royal Horticultural Society; with Mr. G. C. Gough, B.Sc., secretary. Its conclusions in brief are the advisability of establishing (1) a school of economic botany, (2) a centre of research in physiological botany, (3) a centre for horticultural teaching, (4) courses in school gardening suitable for school teachers, and the provision of material for botanical teaching and research in other institutions. The total cost of staff and attendants is estimated at from £3000 to £3500 per annum; the cost of the buildings £4000; and of equipment £500. We hope that some such scheme may be made effective with as little delay as possible, for there is every reason to believe that in the vegetable kingdom there is much to be discovered which will add considerably to the health and happiness of the human race.

ANIMAL DISEASES IN 1918.

THE annual report of the Chief Veterinary Officer for the year 1918 is in many respects highly satisfactory. There has only been one small outbreak of foot and mouth disease, which occurred in East Sussex, and was promptly and efficiently dealt with. The fact that only one outbreak has occurred during the demobilisation of men and animals from areas where the disease is nearly always indigenous must be attributed to the watchfulness of the Board's officials, to the military authorities, and perhaps also to a spread of the knowledge of hygiene and proper disinfection among the laity engaged in transport. In the case under notice infection was carried from the first recognised centre of disease to an "off farm" by a cow and calf or by their driver. The importance of the strict isolation of affected or suspected animals cannot be too strongly urged. The original source of the disease was not ascertained. This is often very difficult to determine because of the numerous and varied carriers of infection, which include birds, horses, dogs, rabbits, and rats, &c.

Good progress has been made against the outbreak of rabies. In the month ending Jan. 11th there were only 2 outbreaks in the Plymouth district and 3 in Cornwall, whereas as many as 45 cases occurred in the Plymouth district in the month ending Oct. 19th and 6 in Cornwall in the month ending Nov. 16th. The rabid dogs were for the most part attacked by the paralytic form of the disease (dumb rabies), a fortunate circumstance which checked their ability to bite and to run. Moreover, the few dogs that did run (and some of them travelled from 12 to 30 miles) pursued a westerly direction and soon came up to the sea barrier. A great scientific advance has taken place in respect to diagnosis of the disease, and it is possible now to give a definite statement in five hours instead of from 14–30 days. Of the 21 people bitten and sent for treatment not one died—a fact which adds further lustre to the brilliance of the results already recorded from the Pasteur method of treatment. The incubation period (from bite to symptoms) in the dog varied from 24 to 85 days, and in cattle from 22 to 84 days. A notable decrease in the number of cases occurred in the Plymouth district as soon as muzzling and restriction on movement were effective.

The report also deals with swine fever, glanders, anthrax, sheep scab, and parasitic mange. 10,203 suspected cases of swine fever were reported, of which 1407—only 13·8 per cent.—were confirmed. There is evidently need for the education of pig owners to recognise the real symptoms of swine fever and to differentiate them from the many other ailments to which pigs are liable. The results of the serum treatment were quite good, although

its application was by no means universal. There were 34 outbreaks of glanders, and, as usual, the great proportion occurred in the London area. No outbreak was reported among colliery horses. The big decrease, most marked in Scotland, in the cases of anthrax is due to restricted importation of feeding stuffs and artificial manures. The danger from imported feeding stuffs may be inferred from the fact that 91 out of 182 outbreaks occurring during the year on previously clean premises were attributed by the Board to this cause, and 21 to artificial manures of animal origin. Notification and double dipping of Scotch sheep greatly reduced the outbreaks of sheep scab in England. The veterinary inspectors at the ports detected 202 cases of disease in Irish sheep coming to this country. The outbreaks of parasitic mange numbered 4483, the vast majority being of the psoroptic type. Curative measures and the application of hygienic principles prevented more than a small number of animals to become affected in each outbreak. The position as regards mange may improve as the quality of labour and supply of food stuffs become more normal, but we fear the 48 hours' week for carters and horse attendants will not conduce to the better hygiene of the horse's skin, the greater cleanliness of the stables, or the more suitable and regular feeding of the animal.

TREATMENT OF CHRONIC AND QUININE-RESISTING MALARIA BY X RAYS.

THE well-known propensity of the malarial parasite, especially the *Plasmodium falciparum*, to lie dormant in the spleen until the vitality of the patient is lowered by cold or fatigue, as well as the resistance of the crescents of the latter variety to the action of quinine, have stimulated research for new therapeutic methods. Dr. Antonino Pais[1] has lately treated 3000 cases with X ray irradiation to the spleen with results which appear destined to encourage further trial. His technique is to employ hard rays, filtered by 4 mm. of aluminium, which offer the following advantages—i.e., of being biologically more efficacious, of penetrating more deeply the splenic tissue, and of being absorbed to a more uniform depth, thus reducing the variability of absorption which different layers of tissue present towards soft rays. The dose varies from 1 X to 10 or 12 X. The time of the application is not so important in chronic as in acute form; in the latter the dose must be less the nearer the time of administration is to the commencement of a febrile attack, and the higher the temperature. The association of quinine does not call for any special modification in technique, and may proceed, follow, or be given simultaneously with the irradiation. The influence of the X rays is shown in the temperature, the blood dyscrasia, the splenic enlargement, and in parasitic modification. Defervescence of the fever by lysis is constant in chronic forms where irregular, variable, moderate but persistent febrile manifestations are the rule. Irradiation has a definite progressive inhibitory influence over such forms. The effect on the red blood corpuscles is striking; after the first irradiation the number diminishes for from two to five days, but after the first week their number increases and reaches a figure higher than before. The effect on the spleen is that for a few hours acute pains often occur which soon subside and rapid diminution in the size of the organ ensues. The parasites disappear from the blood very gradually. The method of treatment recommended by Dr. Pais seems of practical utility, and an examination of the results obtained, and the gravity of the clinical and social problems that radiotherapy appears able to tackle with success, leave no room for any ulterior considerations.

[1] Annali d' Igiene, June 30th, 1919, Via Palermo 58, Rome.

VOLTAIRE ON AN ANTI-VENEREAL CRUSADE

IN an American medical journal some years ago attention was drawn to the fact that Voltaire mooted the idea of an anti-venereal crusade as early as the year 1767. In his "L'Homme aux Quarante Écus," which is a medley of philosophico-satirical discussions on the subjects of his day in France, the man of the Forty Crowns asks a surgeon the following question: "Could not some means be found of extirpating this contagion [the lues], which renders Europe a desert? An attempt has already been made to weaken the poison of one pox, could not something be tried upon the other?" "There would only be one means of effecting this extirpation," the surgeon replies. "That is if all the princes of Europe were to league themselves together, as in the times of Godfrey of Bouillon. Certainly a crusade against the lues would be much more reasonable than were those undertaken formerly with such unfortunate results against Saladin (King Sala) and the Albigenses. It were far better to come to an understanding as to how to repulse the common enemy of mankind than to be continually occupied in watching for a favourable opportunity of devastating the earth and covering its fields with dead bodies in order to snatch two or three towns and some villages from one's neighbour. I speak against my own interests; for war and syphilis make my fortune, but one should be a man before being a surgeon-major." "It is thus," adds Voltaire, "that the Man of Forty Crowns kept forming his heart and understanding, as the saying goes."

The great wit and humanitarian took a vivid interest in the subject of venereal disease, and in "Candide" has written a pedigree of the lues, tracing it through officers and noble and saintly persons, among other "carriers," back to the times of Columbus. The passage, which is well known, has been very daringly amplified in Captain Marryat's story, "Time Hath Been," in the "Pacha of Many Tales." How the league of the princes of Christendom was to carry out its anti-venereal crusade is not, however, suggested by Voltaire, whose readers are left interested but unenlightened.

UNILATERAL SENSORY CHANGES IN SCIATICA.

IN an investigation of the sensory changes in sciatica Reichart[1] was surprised to find that in about two-thirds of the cases (64 out of 95) the disturbances of sensibility involved the whole or greater part of the side of the body on which the sciatica was present. With one exception, in which tactile sensibility alone was affected while sensibility to pain and temperature remained intact, all modes of sensibility were implicated, sensibility to pain being involved to a greater extent than thermal sensibility. 54 of the 64 cases showed hypæsthesia and 10

[1] Münchener Medizinische Wochenschrift, 1919, lxvi., 903-6.

hyperæsthesia. As regards the distribution, the sensory changes in nearly half the cases involved the whole of one side of the body, frequently including one-half of the tongue. The difference between the affected and sound side was much more distinct in the lower limbs than on the trunk, on the legs than on the thighs, on the hands than on the shoulders or face, and on the feet than on the hands. The abdominal and cremasteric reflexes were almost always present, and as easily obtained on the hypæsthetic as on the sound side. Further examination showed that, in the great majority of cases of sciatica, not merely the sciatic trunk and its branches but also the lumbar plexus and the nerve trunks derived therefrom, and less frequently the large nerves in the arm, as well as in many cases branches of the trigeminal and occipital nerves, were more sensitive on the affected than on the sound side. Several patients stated that they had noticed the unilateral sensory disturbances before the examination was made, while others were surprised by the discovery. Six patients with unilateral sensory disturbances complained of loss of power in their arm on the affected side.

The following explanation of the unilateral disturbance of sensibility is offered. The painful affection of the sciatic plexus and of the lumbar plexus, which is usually involved at the same time, causes a considerable irritation of the cortex (leg centre) and the spread of the irritation to the neighbouring centres accounts for the spontaneous tenderness of one side of the body. The continual irritation leads to an exhaustion of the central nerve cells, which is manifested by a diminution of sensibility to cutaneous stimuli, and owing to the identity of the sensory and motor cortical centres accounts for the frequent loss of power in the arm. In the less frequent cases of hyperæsthesia the ganglion cells, instead of being exhausted, show an increasing irritability. Why one patient presents the sensory changes described and another does not it is difficult to say, and the difference must be explained by individual predisposition.

THE GENESIS OF MIRTH.

BODILY needs are stated nowadays in calories, and if, in addition to being warmed and made capable of locomotion, we desire our bodies to escape such deficiency conditions as rickets, scurvy, and beri-beri, three accessory substances must be included in our diet. Physiologists have long pointed out with a certain hauteur that mental processes as such require no food, or at all events that hard thinking produces no waste products which can be measured. But there is certainly one habit of mind which disappears when the body is not fed. Mirth has deserted Central Europe. Last June Dr. Hilda Clark wrote: "I was four days in Vienna before I saw a child play"; more recent reports from relief workers in Germany, German Austria, and Hungary agree that even where appearances are kept up by neat exterior and uncomplaining mien nothing is left over for spontaneous expression of happiness. In a study[1] of school children made by Professor A. Thiele, the school doctor, and Herr Lorentz, a teacher in the schools of Chemnitz, it is stated that as early as the severe winter of 1916 the children were apt to sit indolent, gazing in front of them, only to be roused by some strong stimulus, and soon relapsing into inattention. The whole nervous system, Dr. Thiele says, possesses a relatively high resistance to deprivation of food, but the lack of important mineral salts was thus early in the war producing among school children a tendency to rapid mental fatigue associated with excitability. Later, loss of energy and initiative became manifest, with a limitation of the fields of vision, in itself sufficient to prevent accuracy of work. Finally, all desire for play and sport died away and, as a secondary result of the loss of the normal relaxations of healthy childhood, primitive and coarse instincts began more and more to assert themselves. Presumably rickets (the "English disease!"), which is now practically universal in the cities of Central Europe, has had much to do with childish disabilities, for of a population of 300,000 in Dortmund Professor Engel notes that 5000 children between 2 and 7 years are unable to walk. Rickets in itself is an absorbing occupation, Dr. J. Lawson Dick, in his recent book,[2] remarking that the infant suffering from active rickets is too much engaged with the struggle for life to have time to fret about lesser things. His energy cannot be dissipated in crying, for it is wholly occupied in getting sufficient oxygen into the lungs. What the outcome of this mental inanition may be is not yet clear. It seems certain, if the figures of late rickets in Vienna go undisputed, that the majority of Viennese children will grow up with stunted bodies, which will never require more than a limited supply of food. So the human race adapts itself to its environment, for better or for worse. Whether the mental life of these children will overflow again into mirth and the spontaneous exuberance of animal spirits must depend chiefly on the actual degree of mental stunting already present. The anxiety felt by those who have witnessed the results of inanition is not so much that the return of plenty may result in keen trade competition as that it will be too late to save healthy mental life. The return of mirth cannot be foreseen.

[1] "Hunger! Wirkungen moderner Kriegsmethoden." Max Rubmann. Berlin, 1919.

Sir George Newman will give the opening address at the West London Post-graduate College (West London Hospital), on Thursday, Oct. 16th, at 4 P.M.

AT the Royal College of Physicians of London the Harveian Oration will be delivered by Dr. Raymond Crawfurd at 4 o'clock on Saturday, Oct. 18th.

THE postponed opening of the winter session at the Middlesex Hospital Medical School will take place on Wednesday, Oct. 15th, at 3 P.M., when Sir John Bland-Sutton will give the opening address. The annual dinner will be held at the Holborn Restaurant the same evening at 6.30 for 7.

THE statistics in the reports submitted to the Local Government Board on public health and medical subjects are issued in a clear and readable form (New Series, No. 124, price 1*s.* 6*d.*). The greater part consists of lists of notifications and attack-rate of infectious diseases throughout the country, in which for each district the approximate population, actual number of cases notified, and rate are arranged in parallel columns, convenient for purposes of reference.

[2] Defective Housing and the Growth of Children. George Allen and Unwin.

THE FRENCH MEDICAL CURRICULUM: A CONTRAST.

BY D. T. BARRY, M.D., D.Sc., F.R.C.S.,
PROFESSOR OF PHYSIOLOGY, UNIVERSITY COLLEGE, CORK.

THE last five academic years of medical studies were begun under the adverse circumstances of war, that is to say, under conditions which demanded a maximum of effort from teacher and student; the approaching academic year is about to open in more auspicious circumstances; the wants of the various schools are to receive attention, and a prospect of material assistance is held forth which cannot come a moment too soon to the more needy institutions. With improved equipment and extended scope there will come enhanced facilities for individual practice in the laboratories and more exacting tests at examinations. The course of clinical study, too, is bound to undergo some important modifications based on war experiences, all, probably, in the direction of a demand for a more profound and more varied knowledge. This trend towards greater efficiency is not one to discourage or to deprecate, and this is not the purport of the present article, which is meant to contrast our own system with that of France without advocating any serious adaptation of the former to the latter. The course of preparation to be undergone by the student in France, where this article is being written, is a more facile one in some important respects; in others, for instance, duration, the French course is a more formidable one. The relative values of the two, to the individual and to the State, can be appraised by the reader without going much into details; it will suffice to mention some of the salient features of the foreign programme with a few words of comment in order to demonstrate marked differences.

Preliminary Standard in Arts.

To begin with, a high standard of general knowledge is required from the French student at entrance; he is obliged to pass the examination for the baccalaureate in arts, which corresponds more closely to the B.A. than to our matriculation in standard, though it is a test of secondary studies in the *lycées* and private colleges. These studies are decidedly more intensive and exhaustive than those pursued in the British secondary schools, and the attainments of the French youth at that age are of a higher order; thus success in this examination at the age of 17 is no uncommon occurrence. In literature, classics, mathematics, and science, the *lycée* student acquires a considerable ground-work. The process employed is conducive to an early unfolding of critical powers and a more ready adaptiveness of the faculties; but a question of practical interest in psychology arises in this connexion: whether later on a disinclination to concentrated effort evolves from this system of youthful culture or not? There is at present a tendency to modify the system, and if not actually to model it on the lines of the English public school, at least to introduce a little more variety; physical exercise is to receive more attention, it is said, but as yet the old order chiefly prevails. Our contrast, however, is not that of secondary studies, and we must be content with the remark that the average French student at the outset of his medical career is better educated than his British prototype.

Length and Arrangement of Curriculum.

In 1914 some important changes were introduced into the medical curriculum in France; the outstanding one is the prolongation of study from four to five years, not including the year devoted to the preliminary sciences. The minimum period from the baccalaureate in arts to the doctorate in medicine is six years, and it is quite exceptional to bridge the interval in that time. The average duration of the course is between seven and eight years, and what with the break for military service the average age for attaining the doctorate is 30 years. Repetition of courses or parts of courses is quite common, though the tests imposed to ascertain competency in them are not severe. Professor Bergonié in a recent article[1] puts forth claims for reorganisation of the whole programme of studies. He complains that much hardship is inflicted on the diligent student by the present system; he is given no incentive to special effort, as no prospect exists of finishing any sooner by hard work than by marking time with the lazy ones. It is difficult to follow the arguments of the professor that the slacker is given the same advantages as the trier; the latter, judging by the written regulations and by one's own observation, has always the advantage over the former, though, of course, the term of five years cannot be reduced. Apart from this latter fact, it seems that the detailed working of the system is vexatious and that it handicaps the good man. Much of the repetition is voluntary or obligatory only in the sense that the conscientious student frequently feels that he has not derived the requisite knowledge from the set period of study; so he decides to repeat. This is particularly so in the later phases—in obstetrics, special subjects, &c. The defects in the courses are in some measure due to want of system, but also to overcrowding and lack of a sufficient number of teachers. In the first three years repetition is rarely voluntary, but as it is determined by somewhat flukey circumstances it occasionally victimises a useful man.

Lack of space is the great defect in the French schools. The number of students in each year's course is about 600 in Paris; it is not surprising, considering also the dearth of material and demonstrators, that lack of opportunity to reach the focus of instruction is the lot of many who are thus shut out from the technical aspects of the work. On the other hand, hospital wards are large and numerous; decentralisation is here possible and the distribution makes instruction more satisfactory. The extension of recognition for teaching purposes from a few hospitals to quite a large number, which is part of the new order, is a reform that has been all too long in coming. L'Hôtel Dieu, Salpêtrière, Charité, Pitié, &c., can now accommodate pretty well the numbers attending. I am not in a position to speak from close personal observation of the provincial schools, but by all accounts the obstacles to good teaching, in some of them at any rate, are quite as formidable as in the capital.

Types and Distribution of Medical Schools.

There are three orders of medical school: (1) *Preparatory schools* (medicine and pharmacy), of which there are many examples in towns not quite of first importance. In these the first three years of the course, with the corresponding examinations, may be completed; after that period the student must proceed to an institution in category (2) or (3). (2) *Ecoles de plein exercise de médecine et de pharmacie.* These are institutions in which all five years of study may be passed and all examinations, except the final and the thesis, carried out. For these latter the candidate must present himself at one of those in the next group. The number of these schools is, I think, three: Rennes, Nantes, Marseilles. (3) *Facultés.* The faculty as part of a university is an autonomous institution upon which are conferred full powers of teaching, examining, and granting degrees. There are faculties at Paris, Lyon, Nancy, Montpellier, Bordeaux, Toulouse, and Lille; Strasburg must now be added, and, in so far as it enjoys the same privileges under the same administration, Algiers.

It will be noticed that pharmaceutical study for dispensing chemists is pursued directly under the ægis of the medical faculty in groups (1) and (2) where students for both professions are mixed, or take some courses together. There are three independent schools of pharmacy—namely, at Paris, Nancy, and Montpellier. The course of training in pharmacy lasts four years, and is of quite a high order; in chemistry the course is very extensive, also in pharmacology, &c., and the examinations are quite stiff. The French dispensing chemist, as a rule, has little trouble in deciphering a prescription written in the English style, with its minims, grains, drachms, &c. The congestion referred to as a characteristic of medicine is not apparent in other faculties; at the Sorbonne in the science faculty there is no hampering factor of this kind; there all examinations are conducted with due attention to practical work.

Extent of Clinical as Opposed to Laboratory Work.

Clinical study in the wards of the hospitals, *le stage* as it is called, is obligatory during the whole five years of the curriculum. It certainly is easier to impose this condition in the first years of the course in France, where attendance at lectures is not compulsory and where laboratory work is confined to attendance for short periods at demonstrations, than it would be in schools where a great deal of the

[1] Journal de Médecine de Bordeaux, June 10th, 1919.

beginner's time is rigidly devoted to lectures, dissections, and practical laboratory work. It is more than doubtful if the advantages accruing from early and continued acquaintance with clinical work can ever make up for the very serious defects of an almost purely theoretical course in anatomy and physiology, not to mention pathology and bacteriology. We note in the faculty's regulations that attendance at practical work, the *enseignement technique*, is compulsory, and that the student's work in this phase is *constaté par des interrogations ou des manipulations*. Investigating the situation at close quarters we find that the word *manipulations* is a mere bit of window-dressing; nine out of ten students never touch a piece of physiological apparatus, a microscope section other than a fully prepared mount, in their whole undergraduate career. Only towards the final stages do they touch a test-tube and then put it to limited use. Somewhat more use is made of the scalpel and forceps in dissection, but in that, too, the performance is not elaborate and exhibits a great difference from the systematic methods of British schools.

Classes of Students.

There are three classes of student in attendance at the hospitals: *internes*, *externes*, and *stagiaires*. The first-named are resident; the second leave the hospital at night, but are liable to be called on at any hour in case of emergency; they are in the institution all day. The rest or main bulk of the students, who have no responsibilities beyond putting in an appearance for three hours every morning, are the *stagiaires*.

Optional Lectures.

The fact that attendance at lectures is not compulsory provides a striking illustration of their usefulness. A systematic course is given by the professor in each subject, but the attendance of students, being voluntary, his audience generally consists of a few ambitious enthusiasts and a few "casuals," who go with no other object than that dictated by the love of occasionally exercising a privilege even when it bores him. Through what medium, then, is the student brought into touch with the subject, and by what means are his thoughts brought to bear on general principles? The reading of books is his chief resource; supplemented by a mere glance at the performance of an experiment, more often only at the result of an experiment, or a peep down a microscope, such reading gives him little facility for the elucidation of problems as compared with the careful exposition to which he would be treated in the lecture-room. The absence of lectures is, with the lack of use of the hands, a cause of the delay exhibited by the majority in getting a grasp of what is before them. The repetition of courses referred to is all too frequently a result of want of coördination and completeness in the teaching process; not only the ability to learn is affected, but interest in the work suffers and desire to advance is not given adequate stimulus. In addition to what a man actually learns from a lecture or series of lectures, there is the advantage of obligatory renewal of acquaintance with the subject at regular intervals, otherwise it tends to drop out of the student's consciousness of things that matter.

Livret Scolaire.

The *livret scolaire*, or record book of the student's behaviour and achievements in the classes, is an institution which has much to recommend it. We have got no real equivalent. The progress of the person concerned is entered up regularly in this book through the session; if there were only some more convincing tests of his proficiency than the few simple questions which determine his *note* or marks it would be an excellent practice. The *livret scolaire* is an important factor in the examinations proper; it is kept by the assistants, who are responsible for it to the administrative body, and it is presented to the examiners when the candidate presents himself.

Viva Voce Examination.

The system of examinations seems very strange to the British visitor. He receives a shock on being informed that right through the whole series there are no questions to be answered in writing by the candidate. The only approach to the British paper system is when the candidate for the final examination has to write his diagnosis, prognosis, and treatment for a clinical case. The thesis for the degree is also an exception. In the course of the *viva voce* examination, the candidate may express a desire to write a formula or to draw in illustration of his answer. Beyond these instances there is no writing required. There are no practical tests at examinations, other than the final, except as already indicated by the courses—i.e., a question concerning some experiment, the recognition of a slide, &c. In anatomy a short dissection is given. In what, then, does the examination consist? It is almost solely of the *viva voce* order. In that case, it will be surmised, this must be an elaborate performance, a real raking test of knowledge. The method is somewhat as follows. A jury of three to five examiners is appointed by the dean or by a director. Those qualified to take part in it are numerous and include *agrégés*, assistants, lecturers, as well as the professors. The practical portion, in so far as it can be called practical, is conducted by the *chefs de travaux*, or assistants, who do not always form part of the jury, but who report to the latter on the answering of the candidates. The jury, say three, are seated at a long table facing a row of some 15 or more *examinés*. Behind the candidates, and quite close, is a barrier separating off the audience, which consists of a number of interested people looking on at the performance and listening to the dialogue of the actors in the scene; these are the general public, who are admitted to all such séances. A number of slips of paper on which questions are written are placed on the table, blank side up. From the pile in front of each examiner the candidate draws one question *au hasard*, and he is generally given a few moments to consider his answer. The question, as a rule, is treated exhaustively; the replies are appraised as "very good," "good," "middling," or "bad." The president of the jury deviates very widely from the set question, the others but little; he also gives his attention to more than one candidate at a time. If a man is "stumped" by the question the examiner takes him on to any point that he likes, choosing something easier for the most part.

The standard of answering of the successful candidates is comparatively low, lower at the present time than usual; the exceptional conditions determine exceptional leniency; but even in normal times the examination test is a much simpler thing than that to which we are accustomed. In the old regime there were no examinations at the end of either of the first two years; questions in anatomy and physiology were given in the final, as they are liable to be given now, though the provision is rarely acted on.

General Survey and Comparison.

Taking a general survey of the French curriculum we are struck chiefly by the absence from it of practical work, or any equivalent of this as we know it; it is especially wanting in the earlier years of study. Certainly to those steeped in the British tradition that practice makes perfect, to those who believe that knowledge established through impressions received in the higher centres from the senses of vision and hearing alone falls short in many important attributes of that which is supplemented by the tactile and muscular senses, to such the purely theoretical nature of the early teaching in this curriculum leaves much to be desired. At first sight we are impressed by the importance attached to clinical study, a compulsory item on the programme for every year. Then we ascertain that this is made possible only by the suppression of the laboratory work which we all deem so important and the neglect of systematic lectures which most of us deem almost equally important; this gives check to our initial favourable thoughts on the position. Further investigation reveals a lack of interest on the part of the embryo clinicians, and we conclude that the advantages of the scheme are hopelessly outweighed by the obvious disadvantages. The benefits accruing from a three hours' daily hospital routine to the average *stagiaire* of the unsophisticated variety are no more than could be derived by him in a few hours each week at the bedside. These few hours may be recommended to all schools by those who have witnessed the keenness of the competitions for resident posts in French hospitals. The interne and externe student clerks in the hospitals, already referred to, are appointed on the results of competitive examination; as many as 50 competitors may enter for a couple of vacancies, and it will be readily understood that the rivalry is keen; this is especially so for the *internat*, in which the appointments number two or three for each hospital. The *externat* consists of six to eight. The examination for these partakes largely of things learned in the hospital; it would be a pity to deprive it of this character by abolishing all

hospital attendance during the earlier stages; some idea of clinical work must be gained from the start if the student is to display any proficiency by the time the examination comes round in his third year; but much less than at present imposed would meet the case, and this, even at the cost of cutting some laboratory work, it would be well to maintain.

Viewed from the standpoint of expediency only, the French administration is adopting a wise policy; having no accommodation for the ordinary laboratory courses and lectures it does the next best thing. Even in the hospitals there is not sufficient scope to give courses of the kind if an idea of their feasibility should enter the responsible heads. Paris has need not of one but of four or five large medical schools with properly equipped laboratories.

The desirability of introducing a written examination into the present series is apparent to most of the teachers; it is pressed for by Professor Bergonié[2] in his appeal for a new order. The indifferent and the active opponents of the project are influenced not so much by the question of its value or utility as by that of expediency. "*Comment voulez-vous qu'on le fasse, voyons?*" they ask. "By spreading out the candidates a bit," you may reply. "Put some of them in the hospitals, others in class-rooms, &c. You would find room enough somehow." Suggestions of this sort have, of course, already occurred to those concerned, but they are not adopted. The surgeons and physicians are the greatest sinners in perpetuating the undesirable state of things; they have to deal with the limited writing already mentioned for the final examination and thesis, and they do not realise the need for more.

The standard of the thesis for the Doctorate in Medicine is fairly good, though one is struck by the lack of the critical attitude in successful essays. There is generally an exhaustive exposition of the views prevailing on the subject dealt with, and the bibliography is extensive. But with little call for original thought and discursive display the thesis must be pronounced an easy final obstacle to the attainment of the student's goal, the M.D. degree.

NOTES ON HOUSING.

The International Red Cross and Housing.

THE League of Red Cross Societies have recently issued their report on the conference held at Cannes last April. In a paragraph which deals with housing and town-planning the report asserts that improvement in the social welfare of the people plays an important part in the campaign for the prevention of tuberculosis, venereal diseases, malaria, and in child welfare. It was felt that the importance of the provision of sanitary, comfortable, and convenient dwellings is so generally recognised as to require little discussion, but that too often when the work is actually in hand experienced advice and the best designs are not available. Thus, houses and apartments for workmen are erected from unsatisfactory designs made by inexperienced architects or from the plans drawn by speculative builders; and the resulting structures are not only far less comfortable, convenient, and sanitary than they should be, but the cost is in excess of the amount for which similar houses, better in every respect, could have been produced. The national Red Cross societies are advised to attach to their personnel one or more architects or engineers specially informed on the problems of town-planning and in the erection of homes for workmen. The national Red Cross section should be prepared to proffer advice and to furnish designs for the best types of houses in those localities where such work is being undertaken. The Central Bureau on its part should collect plans and designs for houses, apartments, buildings, schemes for town-planning, designs for hospitals, charitable and penal institutions of various countries, analyse and digest them, and distribute the results of the studies to the various Red Cross societies for their use and guidance. The question of materials to be employed in different localities and countries would be a most important one, and would depend upon those which were most easily available and most inexpensive in the respective countries. Some further suggestions under this heading are attached.

A list is also presented of those architectural features for which good housing and town-planning must make adequate provision. These include planning with a view to securing personal and family privacy and to making the home as comfortable and attractive as possible; the provision of rest rooms for women and girls in factories, shops, and schools; the prevention of room, block, and transportation overcrowding; convenient sanitary places for the preparation, handling, and sale of foods; streets, blocks, and open spaces planned so as to provide for sunlight in as many rooms as possible and for the circulation of fresh air, free from dust and smoke; the segregation of buildings whose use is harmful to their surroundings from the standpoint of safety, health, and comfort, and so that prevailing winds will not blow smoke and noxious gases and odours over the residential portion of the town; and the provision of attractive places for physical and social recreation. The most progressive countries now recognise these principles; many of them are applying them in practice; many have passed laws, more or less effective, to compel their application. Much, however, remains to be done, especially in the matters of scientific research and popular education.

[2] Loc. cit.

New Publications.

Dr. J. Lawson Dick's book, entitled "Defective Housing and the Growth of Children," to which we allude elsewhere, would more accurately have been described as an essay on rickets, for the bulk of the book is concerned with the changes which result from this disease in the skeletal, dental, and endocrinous systems, together with a consideration of its relation to mental deficiency. It is, however, not the least interesting feature of the book that for all these things bad housing conditions are held to be chiefly responsible. The author discusses the occurrence of rickets amongst the Jewish population, wherein the children, although overcrowded, are well nourished, and seeks to prove that whereas rickets may or does occur when the fat-soluble A factor is abundant in the diet, it never occurs where sufficient fresh air and exercise have been provided. It is difficult, he says, to avoid the conclusion, the converse of that arrived at by Professor F. G. Hopkins, that defective housing and slum dwellings are the essential causes of rickets, and that any scheme of feeding, however perfect, will inevitably be a failure so long as slums and housing conditions are left as they are.

The Housing Department of the Ministry of Health now issues a fortnightly periodical.[1] Being an official publication it is robbed very largely of the function of criticism, but it provides an interesting survey of the progress that is being made in building in different parts of the country. From this source we learn that the number of local authorities which have begun work on building schemes is less than a hundred, and yet the building season is rapidly drawing to a close. Dr. Addison was called upon to defend his new journal in the House of Commons on August 14th. He then stated that its function was not to compete with existing periodicals, but merely to provide a regular means of direct communication between the Department, the local authorities, and the Ministry's staff up and down the country. The idea is wholly admirable, and medical men will be most interested to learn at regular and short intervals how and when the building schemes are developing.

Manuals and Memoranda.

The Ministry does not, however, confine itself to this method of keeping in touch with its officials and those of the local authorities. It is evidently anxious that no unnecessary extravagance shall be committed through ignorance of the most efficient, and therefore of the most economical, methods of construction. Thus it has issued a standard specification for the construction of roads and sewers, and is not prepared to approve schemes which depart unnecessarily from the rulings which are laid down therein. The result of this anxiety to protect the taxpayer from unnecessary expense has been to restrict the output in bricks and mortar to such an extent that the housing needs of the country are to-day much the same as at the signing of the armistice. Moreover, there is no immediate prospect of their diminution. This delay was foreseen, and an attempt made to counteract it in the provisions of the Housing (1919) Act. Section 12 gives the local authority power to acquire existing houses, and to alter, enlarge, repair, or improve them so as to make them habitable

[1] Housing. H.M. Stationery Office. Price 3*d*.

as houses for the working classes. These powers include the right to acquire large houses for conversion into flats. During September the Ministry issued a Manual[2] whose object is to place in the hands of local authorities detailed suggestions as to how this conversion may be carried out. Advice is given as to the legal powers conferred by the Act, the class of property which is suitable for conversion, and the procedures which must be followed to obtain Government aid. A series of typical plans is appended which will be of assistance to any local architects, if such there be, who are lacking in initiative. The number of houses in London scheduled as generally suitable for conversion has already reached 1000.

The Ministry has since issued model forms of tender and agreement, with conditions of contract and schedule of prices. The model forms, intended to be generally adopted in connexion with State-aided housing schemes, are published at the modest price of 3*d*. at the Stationery Office.

Temporary Accommodation.

A clause has been inserted in the Act which enables the local authority, during a period of three years from the passing of the Act, to assent to the erection of temporary buildings for human habitation, notwithstanding the provisions of any building by-laws in force in the district. For this purpose the Ministry is prepared to arrange for the sale of army huts of selected types at a discount of 33⅓ per cent. below the valuation of the property. Wherever there exist such huts which are urgently needed for housing purposes the War Office have undertaken, upon receiving representations from the Ministry of Health, to make every effort to expedite their evacuation.

Concrete Houses.

An experiment in concrete house-building is at present being carried out at Braintree. This method of construction is particularly rapid, three houses being completed every week. The cost of construction, however, varies considerably with the locality. At Braintree a suitable gravel is found on the building site, so that a great deal of cartage is avoided. Powerful machinery has been installed, and as many as 4000 concrete blocks—the equivalent of 24,000 bricks—can be manufactured in a day. For reconstruction purposes in France this method was carefully inquired into and finally rejected in favour of *maisons démontables* built of wood, but it may well be that in certain parts of this country concrete is more economical. The houses are dry and fireproof, and need not be excessively ugly if they are well designed.

Housing in Nova Scotia.

In Nova Scotia, so we are told, the housing problem has long ago been solved. One may telegraph for a house and it will be forwarded by the next train. These houses are, of course, built of wood, and the doors are liable to be uncloseable in damp weather. Galvanised iron is largely used to protect the exteriors and as roofing. There are two objections to its use: that appearance which in England we associate with the temples of the lesser Christian sects, and the noise which is made by the beating of rain upon its surface. The first objection can be largely overcome by an æsthetic architect; the second is met by inserting spruce bark between the iron and the wooden ceiling. This not only deadens the sound, but provides a pleasant aroma which is exceedingly inimical to flies. The speed with which the city of Halifax was reconstructed after the devastating explosion which occurred there is evidence of what may be done in wooden buildings when a large supply of the raw material is at hand.

[2] Manual on the Conversion of Houses into Flats for the Working Classes. H.M. Stationery Office. 1919. Price 1s.

THE CHILD-STUDY SOCIETY.—This society is holding meetings at the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W. On Oct. 23rd a discussion will be opened by Mr. C. H. Barker on the Literary Needs of the Child. How to Make English Live in the Child Mind is the subject of the following lecture by Mr. O. A. Minns on Nov. 6th, and the Pre-School Child will be the topic of a lecture by Dr. David Forsyth on Nov. 20th, when Mrs. Scharlieb, M.D., will preside. The last lecture of the session will be on Religion and Education, by the Rev. W. F. Cobb, on Dec. 4th. The hour of meeting is 6 P.M. in all cases.

THE LONDON MEDICAL EXHIBITION.

AFTER a lapse of six years the ninth London Medical Exhibition was opened at the Central Hall, Westminster, on Oct. 6th, remaining open until to-day (Friday, Oct. 10th). Former exhibitions organised and conducted under the same auspices were held in the Horticultural Hall, Vincent-square. While that building is more commodious, the situation of the Central Hall is convenient and has fulfilled the purposes for which it was employed excellently. The drug, instrument, and book trades were well represented at the exhibition, especially when there are taken into consideration the difficulties of transport and the general dislocation of business due to the recent strike.

Progress of British Manufacturers.

The exhibition proved of particular interest in showing the numerous and important advances made in this country, chiefly in the manufacture of chemical and pharmaceutical products and antiseptics during the period of the war. Preparations were to be found in good number, demonstrating agreeably how British manufacturers have risen to the occasion who have now established their laboratories and factories as reliable and adequate sources of supplies of many products hitherto exclusively obtained from abroad. The arsenical synthetics, aceto-salicylic acid, peptone for bacteriological work, and drugs in colloidal state, may well be described as vindications of British powers of research and application. The demonstration served to show also how professional in character were the products, for the organisers have always made a point of keeping the exhibition exclusive to the medical visitor. Medical men found themselves able to spend a good deal of time in making a serious review of the exhibits, for the exhibition proved a real demonstrative centre of new things in medicine and in surgery.

The Exhibits.

It was not the object of the exhibitors, or at any rate of the biggest firms, to afford a complete display of their various products, but rather the general aim was twofold: first, to show those productions and preparations for which the firms have made a name; and secondly, to exhibit such products and preparations as hitherto have been made abroad. With this end in view, Messrs. Burroughs, Wellcome and Co. displayed kharsivan and neokharsivan made by them in place of the German salvarsan and neosalvarsan. Messrs. Allen and Hanburys, among other special products, showed "eupepton" made to displace Pepton Witte. An exhibit of much interest was that of British Colloids Ltd., who showed the various collosols, a purely British discovery, both as regards origin and the means to render metallic colloids stable. Messrs. Howards and Sons, Ltd., among the very large number of chemicals manufactured by them, showed aspirin tablets reaching a high standard of purity and of great solubility, thus proving that aspirin preparations of the finest quality can be made in this country. Messrs. Parke, Davis and Co. had a picked selection of their special preparations, among them being apothesine, granulogen, and hemoplastin. Messrs. Boots Pure Drug Company, Ltd., had a good display of synthetic medicinal chemicals and modern antiseptics. Messrs. May and Baker, Ltd., showed specimens to illustrate the chemical synthesis of arsenobillon, ampoules of arsenobillon, novarsenobillon, and disodo-luargol, and synthetic and medicinal chemicals. Messrs. C. J. Hewlett and Son, Ltd., showed a selection of their beautiful preparations, triumphs of the chemist's art. Messrs. Savory and Moore, Ltd., had a display of their many well-known food and chemical products. An exhibit which attracted a good deal of attention was Dr. George Oliver's hæmoglobinometer and hæmocytometer.

Surgical appliances of every description were well represented in the displays of Messrs. Allen and Hanburys, the Surgical Manufacturing Co., Ltd., and Messrs. Hawkesley and Sons. The Gloucester Surgical Appliances Co., of Cheltenham, exhibited a number of surgical appliances of novel design adaptable for orthopædic disabilities, amongst which were Chandler's patent paralysis splint, a new type of excised elbow apparatus, and several ingenious forms of appliances for drop-wrists and feet.

Messrs. Baillière, Tindall, and Cox exhibited a large number of their well-known publications, as did also Messrs. H. K. Lewis and Co., Ltd., Messrs. Henry Frowde, Hodder, and Stoughton, and Messrs. Stanley Phillips, who among other publications had on view some of the publications of Messrs. D. Appleton and Co.

Further Efforts Necessary.

The main intention of the London Medical Exhibition of this year was to set out, as far as is possible in an exhibition of this nature, the progress which has been made by British chemists and, to a lesser extent, instrument makers in efficiently substituting drugs and appliances of British manufacture for those of foreign make. For this reason reference here has been made almost solely to the exhibits made to displace similar products which were formerly the monopoly of enemy enterprise. The verdict of the visitors will be that confidence may be placed in the ability, or even genius, of British men of science to overcome difficulties, however great. Moreover, to the rank-and-file of the small army of scientific workers of this country is due all honour for the manner in which they have carried out the results of the investigations of their leaders. The exhibition was entirely satisfactory regarded from this point of view; it is essential now that this good work should be kept up. It is to be hoped that the Medical Exhibition of next year will show continued and rapid advances.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

University of Edinburgh: Induction of Professors.

No fewer than six new professors were inducted on Oct. 2nd—namely, three in the Faculty of Arts: Mr. O. L. Richmond, M.A. (Humanity), Mr. Norman K. Smith, M.A., D.Phil. (Logic and Metaphysics), and Mr. Robert K. Hannay, M.A. (Ancient History and Palæography); and three in the Faculty of Medicine: Sir Harold J. Stiles, M.B., C.M., F.R.C.S. Edin. (Regius Professor of Clinical Surgery), Dr. F. D. Boyd, C.B., C.M.G., F.R.C.P. Edin. (Moncrieff Arnott Professor of Clinical Medicine), and Dr. J. C. Meakins (Christison Professor of Therapeutics). The medical professors are all distinguished in their lines. Sir Harold Stiles is well known for his original researches on cancer, which gained him the Walker Prize of the Royal College of Surgeons of England in 1896. Dr. Francis D. Boyd, physician to the Edinburgh Royal Infirmary, has been lecturer on Materia Medica in the School of Medicine of the Royal Colleges, Edinburgh, and during the war acted as consulting physician to the Egyptian Expeditionary Force, serving in Palestine and Egypt. Dr. J. C. Meakins, graduate of McGill University, where he recently held the position of lecturer in medicine and director of the medical research laboratory, was formerly assistant in medicine at the Johns Hopkins Medical School. He served with the Canadian Army Medical Corps during the war, holding the rank of Lieutenant-Colonel, and had medical charge of the large Canadian Hospital at Taplow. He is the first occupant of the new chair of therapeutics. At the present time the number of students seeking entrance to the University is greatly in excess of the vacancies available, and many of the more junior are having to be refused, or their admission postponed; preference is in all cases given to those who have been on military service. The teaching arrangements of the medical school are now returning to the normal, and it is certain that by the additions to the professorial staff the high standard of instruction will be enhanced.

Scottish Vital Statistics, 1917.

In his report for 1917 the Registrar-General for Scotland estimates the population of Scotland at the middle of 1917 as 4,854,738, of which 2,354,345 are males and 2,500,393 females. The total shows an increase of 30,430 over the previous year, and of 93,834 over the population in 1911, the date of the last Census. The birth-rate was the lowest on record, being 20·07 per 1000; this figure is 5·83 less than the mean of the preceding ten years, and 15·83 below that of 1876, the year in which the Scottish birth-rate was at its highest. Marriages numbered 30,482, being at the rate of 6·28 per 1000—the lowest since 1887. The death-rate was 14·31 per 1000, the lowest on record, being 1·43 less than the mean of the previous ten years. The infantile mortality was 107·5 per 1000 births, and is less by 3·4 than the average of the preceding ten years. An examination of the causes of death showed that those due to enteric fever, diphtheria, and tuberculosis were fewer in 1917 than in all previous years, but that the death-rate from malignant disease was higher. Deaths from phthisis, though more than in 1914, were fewer than in all other years. The report shows that there is a continued increase in the number of children exempted from vaccination under the conscientious objection certificate. Of children born in 1916 and surviving at the time of compulsory vaccination, 35·2 per cent. were so exempted; 57·9 per cent. only were successfully vaccinated.

Election of a Direct Representative for Scotland to the General Medical Council.

Dr. Norman Walker, who has been the Direct Representative for Scotland on the General Medical Council for the last 13 years, offers himself as a candidate for re-election, and in the address which he has issued to the profession outlines his views on current medical problems. A number of suggestions are made with regard to the reorganisation of the medical curriculum, the message being that throughout a student's course the importance of preventive medicine should receive greater prominence. While it is not practicable to extend the medical curriculum to longer than five years, Dr. Walker suggests that for senior students four terms per annum of 10 weeks each should be held instead of three as at present, the teaching staff being augmented if necessary. Attention is drawn in the address to the higher standard of preliminary examination recently adopted in Scotland, and it is suggested that since the instruction on chemistry and physics in some of the secondary schools is of a high standard, the student might be advantageously admitted to a preliminary examination in these subjects immediately after entering the university, and so save six months' time which might be utilised for later subjects. In order that the standard of medical education may be maintained Dr. Walker proposes that the present number of inspectors under the General Medical Council should be increased, and that they should take a part in every final or qualifying examination.

Oct. 6th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Health of Belfast in 1918.

Two important reports—that of the medical officer of health of Belfast for 1918 and that of the chief tuberculosis officer of the Belfast corporation for the year ended March 31st, 1919—have just been issued. The difficulty is encountered as to what is the population of Belfast, which the Registrar-General estimated as 393,000 to the middle of 1918, the same as that for 1917. In his report for 1917 the medical officer of health of Belfast pointed out that if the population had been calculated on the average number of persons per house, as shown by the Census returns of 1911, and the number of occupied dwelling-houses, it would have been over 404,000 for that year alone; notwithstanding this, the population for 1918 is fixed at the same figure as that for 1917, no allowance whatever being made for the great influx of people to the city of Belfast during the last few years, many of whom, together with their families, have had to content themselves with a couple of rooms, no proper housing accommodation being available. It became quite clear, at the time of the Belfast Health Commission, that any attempt to form an idea of the population of the city between the periods at which the Census is taken is mere guesswork. Accepting, however, the population of Belfast in 1918 to be 393,000 (as a mere working hypothesis), the birth-rate was 23·6, an increase of 1·4 per 1000 of the population as compared with 1917; the death-rate was 22·7, a great increase over that of 1917, which was 16·7; while the annual death-rate for the 10 years 1908–1917 was 18·1. This great increase is attributed to the serious epidemics of influenza, followed by septic pneumonia, which occurred in the summer and autumn of the year, and against which the rigorous precautions put in practice seemed to have had little effect. The infantile mortality rate—144 per

1000 births—is an increase of 14 per 1000 as compared with the preceding year. The phthisis mortality was 2·7 per 1000, the highest since 1906, and a steady rise since 1915. The increase is attributed to deaths as the result of tuberculosis of soldiers and sailors, and to the influenza epidemics. In connexion with the public health of Belfast the total death-rate, the infantile mortality, and the phthisis death-rate for 1918 are all increased, while at the same time one of the most costly departments in the city expenditure for 1918 is that of public health—£90,000 during the year. Ten years ago the expenditure was just over £60,000, so that in a decade it has gone up 50 per cent. The tuberculosis new scheme, which costs £37,000, is charged upon the poor-rate, and not upon the municipal rate. The Government is supposed to pay half the cost of that scheme, but the returns show that the amount of their contributions last year was only £14,666.

Doctors' Fees.

The doctors in Lisburn have decided to increase their fees by 25 per cent. In addition, all Sunday-night calls are to be charged a fee and a half.

The Late Dr. Samuel Wright.

The death occurred on Sept. 20th at Portrush of Dr. Samuel Wright, of Belfast. Born in 1890, Dr. Wright received his medical education in Queen's College, Belfast, where his personal popularity was very marked. He took the L.R.C.P. & S. Edin. in 1913 and the D.P.H. Belfast last year. One of the original Expeditionary Force, he went to France in August, 1914, as a Lieutenant of R.A.M.C. (S.R.). He was attached for a time to No. 9 Stationary Hospital, and afterwards became M.O. i/c. 2nd Battalion the Leinster Regiment. At the battle of Neuve Chapelle he was gassed and strained his heart, but was able to carry on for three more years before resigning his commission. From then until his death his health was undermined, and he was never fit for the arduous duties of a medical man. He leaves a widow and a large circle of friends to mourn him.

Oct. 7th.

URBAN VITAL STATISTICS.

(Week ended Sept. 27th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 10·7, 10·4, and 10·9 in the three preceding weeks, rose to 11·8 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 12·0, or 0·6 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 6·3 in Hornsey, 6·8 in Wimbledon, and 7·1 in Acton, to 17·8 in Burnley, 21·0 in Dewsbury, and 21·5 in Hastings. The principal epidemic diseases caused 489 deaths, which corresponded to an annual rate of 1·5 per 1000, and included 371 from infantile diarrhœa, 58 from diphtheria, 24 from measles, 19 from whooping-cough, 13 from scarlet fever, and 4 from enteric fever. Measles caused a death-rate of 1·1 in Sunderland, 1·3 in Gateshead, and 2·0 in South Shields. The 371 deaths from infantile diarrhœa were 49 in excess of the number in the previous week, and included 138 in London, 23 in Liverpool, 13 in Sunderland, and 12 each in West Ham, Birmingham, and Newcastle-upon-Tyne. There were 1652 cases of scarlet fever and 1175 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1524 and 1118 respectively at the end of the previous week. The causes of 29 deaths in the 96 towns were uncertified, and included 4 each in Birmingham and Darlington, and 3 each in Stoke-on-Trent and Sunderland.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 10·8, 10·2, and 10·5 in the three preceding weeks, rose to 11·9 per 1000. The 249 deaths in Glasgow corresponded to an annual rate of 11·6 per 1000, and included 17 from infantile diarrhœa, 2 from diphtheria, and 1 each from enteric fever, scarlet fever, and whooping-cough. The 64 deaths in Edinburgh were equal to a rate of 9·9 per 1000, and included 2 each from measles, scarlet fever, and infantile diarrhœa, and 1 from whooping-cough.

Irish Towns.—The 117 deaths in Dublin corresponded to an annual rate of 15·1, or 2·6 per 1000 above that recorded in the previous week, and included 9 from infantile diarrhœa, and 1 each from enteric fever and scarlet fever. The 112 deaths in Belfast were equal to a rate of 14·6 per 1000, and included 13 from infantile diarrhœa, 5 from scarlet fever, and 1 each from enteric fever and diphtheria.

(Week ended Oct. 4th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 10·4, 10·9, and 11·8 in the three preceding weeks, further rose to 12·0 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 12·2, or 0·2 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 5·3 in Acton, 6·4 in Blackpool, and 6·7 in Smethwick, to 19·7 in Gateshead, 21·3 in Warrington, and 27·2 in Tynemouth. The principal epidemic diseases caused 411 deaths, which corresponded to an annual rate of 1·3 per 1000, and comprised 292 from infantile diarrhœa, 52 from diphtheria, 19 from whooping-cough, 16 each from scarlet fever and measles, and 12 from enteric fever. Measles caused a death-rate of 1·1 in Sunderland. The deaths from infantile diarrhœa, which had been 241, 322, and 371 in the three preceding weeks, fell to 292, and included 114 in London, 25 in Liverpool, and 9 each in Sunderland and Newcastle-upon-Tyne. There were 1796 cases of scarlet fever and 1206 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1652 and 1175 respectively at the end of the previous week. The causes of 26 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham, 3 each in Liverpool and Hull, and 2 in Eastbourne.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 10·2, 10·5, and 11·9 in the three preceding weeks, fell to 10·8 per 1000. The 216 deaths in Glasgow corresponded to an annual rate of 10·1 per 1000, and included 7 from infantile diarrhœa, 4 from diphtheria, and 3 from whooping-cough. The 65 deaths in Edinburgh were equal to a rate of 10·1 per 1000, and included 3 from infantile diarrhœa and 1 from measles.

Irish Towns.—The 122 deaths in Dublin corresponded to an annual rate of 15·7, or 0·6 per 1000 above that recorded in the previous week, and included 8 from infantile diarrhœa, 2 from scarlet fever, and 1 from diphtheria. The 107 deaths in Belfast were equal to a rate of 13·9 per 1000, and included 13 from infantile diarrhœa and 4 from scarlet fever.

Obituary.

WILLIAM KAY WALLS, M.B. LOND., M.R.C.S.,

HONORARY SURGEON TO ST. MARY'S HOSPITAL, MANCHESTER; CLINICAL LECTURER ON MIDWIFERY AND DISEASES OF WOMEN IN THE UNIVERSITY OF MANCHESTER.

Dr. William Kay Walls, who died on Sept. 30th, was well known in the North of England as an obstetrician and gynæcologist.

Born in 1865, the son of a doctor in a busy practice in Manchester, he entered the medical school of Owens College, Manchester, obtaining his Conjoint qualification in 1888 and taking the M.B. Lond. a few years later. He was then Mr. Whitehead's house surgeon at the Royal Infirmary and held the post of house surgeon to St. Mary's Hospital, Manchester, his association with which was only broken by his death. As resident obstetric assistant surgeon and surgical officer for seven years he gave promise of his later surgical skill and showed talent as an organiser. This long apprenticeship served him well, for when he left the hospital he started his private work with a fund of experience and a practical dexterity which few men of his years could possess. He remained on the staff of St. Mary's Hospital as assistant surgeon, and after the amalgamation of this hospital with the Southern Hospital in 1905 he had charge of a larger number of beds.

Dr. Walls made rapid progress as a consultant, being a bold and skilful operator, with sound judgment. Deliberate in his decision, once decided he was rapid and most expert. It may be regretted that he wrote so little, for few men in his special work had clearer views, and no one who had the opportunity of following his work failed to learn something from his methods. He was a regular attendant at the meetings of the North of England Obstetrical and Gynæcological Society, becoming President in 1910. He was an excellent clinical teacher and held the post of clinical lecturer in Manchester University.

Outside his professional life Dr. Walls had many interests: golf, motoring, photography, music, and billiards all attracted him. He was the main organiser of the successful annual competition for medical golfers living in Manchester and the neighbourhood. Quiet in his manner and almost reticent, he was essentially kindly, and would spare no trouble to do a good turn to a friend.

The last two years of his life were clouded by ill-health, but until last spring he allowed it to make no difference in his professional life. Ultimately he was compelled to give up active work. He will be greatly missed by a large circle of friends, his colleagues, and by many who have been under his care—not least by the poorer patients who crowded his out-patient room. He leaves a widow and three daughters.

THE LATE DR. ROBERT MACNAB.—Robert Macnab, M.D. Glasg., F.R.C.S. Edin., J.P., who died recently at his residence in Bath, in his seventy-ninth year, was formerly in practice at Bury St. Edmunds, and was honorary consulting surgeon to the West Suffolk Hospital. For many years he conducted a very large general practice in West Suffolk, at first alone and later in partnership with Mr. R. H. Lucas. He was an admirable all-round practitioner and commanded esteem and respect over a large district of the county.

Correspondence.

"Audi alteram partem."

THE ROUTINE WASSERMANN.

To the Editor of THE LANCET.

SIR,—At the present time, with the venereal lessons of the last five years lying before us, there should be little need to insist upon the importance of the incidence of syphilis in the community. Sir William Osler has estimated that 60,000 people die annually in these islands from this disease and its sequelæ. The estimate is a moderate one. But the importance of syphilis as a killing disease is unfortunately not yet realised.

The Stimulation of Public Opinion.

Sensations—in the journalistic sense—may be vulgar. They may be incompatible with the dignity and scientific detachment of the British medical mind; but, had THE LANCET of 1917 been a lay journal and had the article on "The Campaign against Syphilis," by Sir William Osler, been heavily headlined and written in a different style, it would undoubtedly have caused a "sensation." The fact that in 1917 over 90,000 men of the British Army in France suffered from venereal disease is a sensational one. The value of a journalistic sensation is that it directs attention towards some particular object, usually a scandal. A strong public opinion is aroused which demands that immediate steps be taken to remedy the matter. The recent influenza epidemic stimulated both the general public and the medical profession into valuable activity. Yet that epidemic, as a source of national danger and weakness, was insignificant when compared with the endemic syphilitic menace. While the former was tackled with energy, the latter is regarded with something approaching apathy. The 60,000 annual deaths arouse neither resentment on the part of the lay public nor shame on that of the medical profession.

Needless Mortality from Syphilis.

Were the matter properly appreciated it would be realised that such mortality is needless. We know that syphilis is curable; that there is no necessity for the disease to advance beyond its primary stage; that under suitable conditions even the primary stage should be a curiosity; and yet these 60,000 people are allowed to die. The public have the right to demand an explanation; and they have, furthermore, the right to know what steps are being taken to prevent the continued annual recurrence of mortality from this cause. At the present time the profession as a whole is not working to reduce the incidence of the disease and the death-rate resulting from it. A few enthusiasts and pioneers are, but for the majority the main characteristic is inertia. The reason is that syphilis creates no sensation; it has made little impression upon the public or professional mind.

The mortality from syphilis is, we know, due to want of early diagnosis and inadequate treatment. We are the teachers of the public on matters of health. Although the man in the street is, in a great degree to blame, his fault and misfortune spring from ignorance. We must bear the ultimate responsibility for that. As an educative force we have greatly neglected our opportunities. In this special matter we have failed in our duty to the community for our function is just as much to prevent as to cure disease. Tuberculosis and cancer may be important. They are certainly cleaner to mention than venereal disease; but their influence upon the national health is infinitesimal when compared with that of syphilis and gonorrhœa.

Inadequate Treatment.

That there should still be discussion amongst us as to prophylaxis, compulsory notification, and compulsory treatment is evidence that we are drifting without a compass on the wide venereal ocean. We have a venereal community living in venereal ignorance. We are a profession of venereal treaters, not preventers. We administer treatment when and where we can, not when and where we ought. The results prove that too often our treatment is inadequate. To complain that we are handicapped by want of public and legislative support is futile, for the fault is ours.

We already possess some machinery which can be adapted for dealing to some extent with the matter. But it is rusty from disuse. Our national health organisation sits like an octopus waving its tentacles over tuberculosis, housing, and insanity. No tentacle has yet had sufficient nerve to take a firm grip of the luetic enemy—the most dangerous, but at the same time the most vulnerable of all. So long as the offensive spirit, energy, and determination are lacking, for as long will syphilis continue to work destruction among our people.

A Venereal Offensive: The Wassermann Test.

The time for academic discussion and the weaving of nebulous theories has gone past. We must attack. If by means of our attack we can at the same time acquire information that will pave the way for a greater offensive, so much the better. To estimate the strength of the enemy is a necessary preliminary to any assault. The more accurate the estimate, the brighter are the prospects of success. One valuable measure would be the performance of a Wassermann on every patient admitted to hospital.

At the present day, on account of the prevalence of syphilis, this is an essential routine. It should be as invariable a rule that a Wassermann test should be done as that the urine should be examined. Not the least valuable effect of this would be that the results would furnish us with a more accurate index as to the prevalence of the disease. Were it continued for a period of years it would indicate whether or not any progress was being made towards eradicating it from the community. The first effect produced where this routine has been adopted has been to cause a feeling of astonishment at the large percentage of positive results. An examination of figures from American hospitals shows that on an average 19 per cent. of patients admitted, not apparently suffering from syphilis, give a positive result. We cannot hope that our experience in England would be in any way different. We would at once discover an immense hospital population suffering from undiagnosed, untreated, and unsuspected syphilis. It is they who recruit the ranks of locomotor ataxia, aneurysm, and general paralysis of the insane. They form the 60,000 annual victims.

It is more important to do a Wassermann on a patient admitted with a fractured femur than on one suffering from lightning pains and whose knee-jerks are gone. As a diagnostic aid or as an indication for treatment it is, in the latter case, practically a waste of time. If in the former case the result is positive, antisyphilitic treatment would have a two-fold effect. It would hasten the repair of the fracture, and would in addition greatly limit the liability of the patient to be readmitted some years later suffering from the quaternary stage of the disease. A great use of the Wassermann is to be found in its application to cases where syphilis is unthought of.

The laboratories for the performance of the test are in practically every hospital. New ones are springing up all over the country. Competent workers are being trained. Here, then, we have ready everything essential to making a practical attack upon communal syphilis. When the routine Wassermann is done upon every hospital patient a real and great step will have been taken towards dealing with what is undoubtedly the largest and most vital problem in public health work to-day.—I am Sir, yours faithfully,

Oct. 4th, 1919. E. T. BURKE, M.B., Ch.B.

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

To the Editor of THE LANCET.

SIR,—In a letter which appeared in your columns on Sept. 20th we are reminded that this federation is the successor of the "Medical Parliamentary Committee." There is, however, an earlier stage in its ancestry, and the story, I am afraid, does not make for confidence in the present organisation. The beginning was a meeting of the profession held some 12 months ago in the Steinway Hall. This meeting was invited to appoint a committee to draw up a scheme with a view to secure an increased medical representation in Parliament, and the invitation was accepted on the assurance that no executive action would be taken until the scheme had been approved by a further meeting of the profession. Whether any such scheme has been framed I do not know, but certainly the pledge given to the meeting has not been fulfilled. We have heard that the committee took to itself the title of "Medical Parliamentary

Committee"; that it entertained medical Members of Parliament to dinner; that it contemplated the employment of an expert lobbyist at the House of Commons; and that it intended a deputation to the Prime Minister. All these gratuitous exercises may have been excellent, but they were quite without sanction from the meeting which called the committee into existence, and they cannot be accepted as a substitute for the particular engagement which the committee definitely undertook.

Again, in the course of the original meeting the chairman, in response to a question from a member of the audience, assured the meeting that the committee would not concern itself with the electoral affairs either of Scotland or of Ireland, and in reliance on this promise an intention to press for representation of Scottish graduates on the committee was abandoned. Yet at the General Election the committee supported the claims of one of the candidates for the Scottish Universities constituency, and it ecöpted a representative from a body which called itself the Scottish Universities Parliamentary Association, and which came into existence shortly before the General Election, not, as its name might suggest, in one or other of the Scottish academic centres, but at 37, Russell-square, W.C., that is, at the official address of the gentleman whose candidature the association was formed to promote but failed to carry to success. In other words, the pledge not to interfere with the question of Scottish representation in the House of Commons, though explicitly given by its chairman, was broken by the Steinway Hall Committee. Here then are two instances in which this committee has not kept its word, and the record, I repeat, does not invite to confidence.

So far as I know, the gentlemen signing the letter in your issue of Sept. 20th, and of whose desire to serve the profession there can be no question, took no active part in the Steinway Hall meeting, but I understand that some of those personally committed by the promises made at this meeting are among the officials or directors of the British Federation. What constituency they represent in the federation I do not know, but most certainly it is not the general meeting of the profession which first called them into being. They were there given a definite and specific reference. This reference they have not discharged, and any other activities they have cultivated have been wholly without warrant. The federation appears as one of these activities, and its appeal for confidence therefore cannot be separated from the story of its origin. The style and title may be new, but the broken pledges remain, and have acquired by this time, it is to be feared, "a very ancient and fish-like smell." I am, Sir, yours faithfully,

Sept. 28th, 1919. C. O. HAWTHORNE.

To the Editor of THE LANCET.

SIR,—We thank you for the opportunity you have given to reply in your columns to a communication from Dr. C. O. Hawthorne dealing with what he terms the ancestry of the "Medical Parliamentary Committee." Dr. Hawthorne rightly assumes, in his letter, that we personally were neither present at the Steinway Hall meeting on Oct. 1st, 1918, nor were we then connected with the "Medical Parliamentary Committee." The pledge referred to as having been given at that meeting was that the temporary committee should report to a further meeting of *the whole profession*, as distinct from a meeting of representatives of the existing medical organisations. It is hardly likely that the same individuals would have attended a second meeting convened on the lines of the first, and it is more than probable that a meeting of representatives of existing medical bodies would be a far more representative gathering of the profession. What actually took place was that as a result of the resolution put by the Right Hon. Christopher Addison, M.P., at the Steinway Hall meeting, and carried, a temporary body was formed, which body reported to a further conference convened and held at the Central Hall, Westminster, under the chairmanship of Sir W. Watson Cheyne, M.P. At this second conference of representative bodies it was decided to proceed in the formation of a permanent body, the duty of giving effect to the seven resolutions adopted and of preparing a financial scheme being left to the provisionally constituted "Medical Parliamentary Committee." This meeting was reported in your columns on May 10th, 1919 and also in THE LANCET of the same date. The provisional committee further reported to a meeting of the representatives of the various associations and societies on July 11th last at the College of Ambulance, when the present Federation came into being.

We know of no body established on a "mandate" from all the members of a profession or trade. Surely every new movement owes its origin and its triumph over the difficulties inseparable from its initial stages to the forward policy of a few individuals. It matters little, however, how and by whom the movement was started; we now have in the Federation a definite body which, if adequately supported, should enable the profession to unite and exercise the function of guiding public opinion in all matters affecting the national health. Thus can we hope to secure for the nation sound legislation based on expert opinion. A central organisation unconcerned with either the internal affairs or the policies of the bodies forming it can achieve this aim and provide a common channel of utterance.

We are, Sir, yours faithfully,

MALCOLM MORRIS, Chairman.
CHARLES BUTTAR, Honorary Secretary.
N. HOWARD MUMMERY, Organising Secretary.

The British Federation of Medical and Allied Societies, 20, Hanover-square, W.1. Oct. 6th, 1919.

NURSE ANÆSTHETISTS.

To the Editor of THE LANCET.

SIR,—As a trained nurse not without ambition, and certainly anxious to be well-equipped, the administration of anæsthetics does not seem to be within my province. I am ready to admit, however, that the training a nurse receives may make some kind of foundation for the acquirement of such knowledge, but if, as your leading article of Sept. 27th implies, the anæsthetist is to be "a pilot whose duty it is to steer the ship of life over a reef-abounding sea," no reliable nurse would wish to act as such unless fully equipped for the voyage. If the point at issue is whether a trained nurse *can become* an expert anæsthetist, I see no reason why she should not; but she must be so trained as to be ready for the uncharted seas.

The well-trained nurse is the last to wish to be classed as one of "the less expert." The medical course of study laid down for an expert anæsthetist either is or is not necessary in its entirety; if it is necessary, it applies as much to the trained nurse as to the medical student; if it is not necessary, it is for the medical authorities to lay down a course which may be taken by medical students and nurses alike. It is possible in such a course a nurse might be credited with the training that she has received; but that is a point for the medical profession to decide. It can only be a drawback to the surgeon to feel that the anæsthetist is only to be relied upon up to a certain point, and that at any moment, possibly the most critical one for him, his attention may be divided and he may be called upon to do two things at once—a situation likely to be detrimental to the patient.

My experience as a surgical nurse leads me to believe that the severity of an operation is no indication as to the behaviour of the patient under the anæsthetic, trivial operations having been associated with serious results from the effects of the anæsthetic. Had I wished to be an anæsthetist I should not have taken up nursing, but I should have entered the medical profession. The economic side of the question also presents difficulties, as a nurse administering an anæsthetic would feel entitled to the same fee as a medical man, and if she did not obtain it might feel in offering "cheap labour" to be acting unfairly to both professions. I am, Sir, yours faithfully,

A TRAINED NURSE.

7, Henrietta-street, W., Sept. 24th, 1919.

To the Editor of THE LANCET.

SIR,—Your leading article of Sept. 27th presupposes that the nurse is necessarily less expert at anæsthetics than the medical officer. At the present moment this may be the case, but I can see no reason why the nurse anæsthetist should not become equally expert both in theory and in practice. Nurses who gave anæsthetics in France were carefully grounded in the elementary theory of anæsthesia, and they have now given more anæsthetics than many pre-war medical anæsthetists. It was the general opinion of the surgeons that the nurse was reliable—in fact,

often more reliable than the available men anæsthetists; that she was always careful, and if she had a fault it was in inducing anæsthesia too slowly.

The real question at issue seems to me to be whether the five years' study as a doctor previous to the anæsthetic course is more advantageous to a successful anæsthetist than the training a nurse has received in her close acquaintance with the conditions of a patient. Nurses in America and Canada have been credited with their training in lieu of the medical training, and their success as anæsthetists has placed their merits beyond controversy. It may be maintained that anæsthetising is not nursing, but neither is massage nor X ray work, for which a woman trained as a nurse is more suited than one who has no knowledge of illness.

Anæsthetics may be a branch of work for which nurses are peculiarly fitted. At all events, the experiment during the war having proved a success, it would seem fair to give nurses who have had this experience the opportunity of qualifying as expert anæsthetists.

I am, Sir, yours faithfully,
D. P. FOSTER,
Sept. 29th, 1919. Assistant Secretary, The College of Nursing.

To the Editor of THE LANCET.

SIR,—May I endorse the chief opinions expressed in your leading article on Nurse Anæsthetists? In my opinion to make nurse anæsthetists is a retrograde step in the direction of those early days when porters played a prime part in securing a quiet patient under anæsthetics. To-day the surgeon ought to be free from having to give a thought or a moment's attention to the condition of the patient. The anæsthetist must not only be able to give to the surgeon all the relaxation, &c., necessary, but he must also be able to give the surgeon the knowledge that anything happening or beginning to happen contrary to the patient's welfare will be seen and understood and remedied by the anæsthetist, and that he (the surgeon) will have due warning if there is need to hurry or to stop. A non-medical anæsthetist can never be in the position to do these things. Further such a class will never be able to help forward knowledge of either theory or practice in anæsthetics. They will perforce remain rule-of-thumb administrators, often no doubt perfect administrators in the one particular method that they have acquired, but always mere administrators under the control of, and leaning on the responsibility of, the surgeon. They helped the war machine; they will be a brake on the progress of the car of peace.

I am, Sir, yours faithfully,
Regent's Park, N.W., Sept. 26th, 1919. J. BLOMFIELD.

THE DIFFERENTIATION OF MANKIND INTO RACIAL TYPES.

To the Editor of THE LANCET.

SIR,—Professor Arthur Keith, in his presidential address which you published on Sept. 27th, appears to account for the differences in racial types by the action of glands as growth-controlling structures. While these glands may control normally certain functions of the body, and when diseased exaggerate, diminish, or modify certain aspects or parts of the body, I cannot see that these account for racial types.

I have associated racial types with environment—i.e.: (1) the Negro and dark races with the hot and level countries; (2) the Mongolian with rugged hills and wind-swept countries; (3) the European with nature in a more modified type both regarding formation and climate. But one must not stop at this side of the Atlantic. The whole of the American continent may furnish some clue to this interesting subject. A humorist has suggested that the third generation of locally bred Americans approach the North American Indian with his peaked skull, straight hair, and, in fact, his whole appearance—the comic implication here was that the American citizen was reverting to type from Mohican ancestry. But in serious fact there is no reason why the European settlers in America should not submit to the environment which influenced the physique of the aborigines. It is said that if the emigration from Europe ceased the different races produced by this constant flow would approach in time the local aboriginal types. The fact is, the types of mankind are stamped with the locality they come from if not modified by migration. Even migration is always yielding to the power of natural surroundings.

According to our present knowledge, I think this is the only satisfactory solution of the different races of mankind and the infinite variety within the races themselves.

I am, Sir, yours faithfully,
T. J. GALLWEY.
Junior United Service Club, Sept. 30th, 1919.

SURGICAL USES OF A HAIRPIN.

To the Editor of THE LANCET.

SIR,—Mr. Arnold K. Henry, in THE LANCET of Oct. 4th, gives some instances in which the hairpin came to his rescue. May I add to his list?

A lady suddenly experienced pain and a constant desire to micturate. On examination I found a calculus the size and shape of a date stone blocking the urethra. An attempt to dislodge it by means of the finger in the vagina was a failure, and caused pain. After sterilising a stout hairpin and slightly bending the loop on the flat I was able to pass the latter over the calculus, and with the aid of the finger in the vagina to fish it out with comparative ease. The hairpin saved me a car run to my house and back and the patient a wait of over half an hour in pain and discomfort.

I am, Sir, yours faithfully,
F. ASHTON WARNER, L.R.C.P. Lond., F.R.C.S. Edin.
Brechin-place, S.W., Oct. 6th, 1919.

WHAT ARE COMMERCIAL USERS?

To the Editor of THE LANCET.

SIR,—At the present time the question of the increasing expense of motoring is an urgent one to the medical profession. The cost of a car and its upkeep is of importance, not only to the doctor, but to the public as well, as it is one of the factors that have necessitated the raising of medical charges and may cause a further increase to be necessary. This increment in the doctor's expenses is due to the greater cost of (1) cars, (2) wages and upkeep, (3) petrol and grease, and (4) tyres. Except the last item these are not easy of reduction, as the present cost is due to world-wide influences, but the question of a possible reduction in the price of tyres to the medical profession is worth discussion. It is common knowledge that the profits on tyres are such that varying discount are allowed by the makers to different grades of agents and users, so that tyres for a commercial vehicle can be obtained for considerably less than the same tyres used on a private pleasure car.

The Dunlop Company invite business firms to apply for the special pink form for commercial users. It would thus appear that from a business point of view there is nothing to prevent cars used for professional purposes being supplied with tyres at a lesser rate than at present if it were agreed by the manufacturers that doctors should be recognised as commercial users. As far as I know, no maker has given our profession this recognition, although I am told that a start was made in the early part of this year by the International Company offering one set only to doctors at 15 per cent. off list prices. As far as the tyre manufacturer is concerned, there can be no sharp line of demarcation between the representative of a big firm that goes round on that firm's business in a nominally commercial car and the surgeon whose car takes his instruments to a nursing home, or the country doctor whose car may be sent back 10 miles in a hurry to fetch a midwifery bag. It will be agreed that both users are far removed from the pleasures of joy-rides.

I wish to suggest that public-spirited tyre manufacturers should offer doctors and veterinary surgeons commercial users' rates, and that THE LANCET should state which makers are willing to make this concession. The makers could issue green forms for doctors' tyre orders, and could protect themselves against misuse by insisting on the doctor signing a declaration (as was done in the case of petrol permits) that he is a registered medical practitioner, and that the tyres are only to be used on his professional car. We have concessions from the Government in the matter of our petrol tax and licences; why should not tyre manufacturers give us the same concessions that they regard as a business proposition when given to commercial firms?

I am, Sir, yours faithfully,
Oct. 7th, 1919. INNER TUBE.

The Services.

ROYAL NAVAL MEDICAL SERVICE

Temp. Surg.-Lieut. R. K. Shaw has been transferred to the permanent list of Surgeon-Lieutenants.

Surg.-Lieut. A. R. Price is placed on the retired list.

ARMY MEDICAL SERVICE.

Col. T. B. Beach, C.M.G., C.B.E., is placed on the Half pay List, having completed four years' service in his rank.

Col. P. C. H. Gordon, C.M.G., retires on retired pay.

ROYAL ARMY MEDICAL COLLEGE.

Col. S. L. Cummins, C.B., C.M.G., to be a Professor.

Major and Bt. Lieut.-Col. J. A. Anderson, R.A.M.C., and Major H. M. J. Perry, O.B.E., R.A.M.C., to be Assistant Professors.

To be attached to Headquarters of Administrative Services and Departments:—Asst. Direct.-Gen., Medical Services: Temp. Lieut.-Col. G. J. Boyce, Can. A.M.C.; Deputy Asst. Direct.-Gen., Medical Services: Temp. Major S. Ellis, Can. A.M.C.

ROYAL ARMY MEDICAL CORPS.

Major A. W. Gater to be acting Lieutenant-Colonel whilst commanding a Medical Unit.

Major F. C. Cowtan is seconded whilst employed under the Air Ministry.

T. M. Kendall, late temporary Major, to be temporary Major.

Capt. G. R. Grant, from Spec. Res., to be Captain.

A. Leitch, late temporary Captain, to be temporary Captain.

To be temporary Captains: Temp. Lieuts. T. G. Dickson, R. C. De Lacey, and J. Lascelles.

Officers relinquishing their commissions: Temp. Lieut.-Col. J. Collis (Lieut.-Col. T.F. Res.) Temporary Lieutenant-Colonels retaining the rank of Lieutenant-Colonel: J. J. G. Blandford, W. Scatterty. Temp. Major and Bt. Lieut.-Col. T. R. St. Johnston (retains the Brevet rank of Lieutenant-Colonel). Temp. Majors W. T. Mead, E. F. Elliot (granted the rank of Lieutenant-Colonel). Temp. Majors retaining the rank of Major: A. O. Neill, J. G. Rowell, R. H. Rigby. Temporary Captains granted the rank of Major: H. T. L. Roberts, H. Goodman, W. H. D. Smith. Temporary Captains retaining the rank of Captain: B. Barnett, N. B. Benjafield, J. V. Buchanan, E. S. Marshall, W. H. Croly, R. N. Hunter, L. Adamson, S. Wilton, G. Johnston, J. McNamara, W. Crerar, F. H. Ellis, C. H. Comerford, J. R. Lucas, A. E. Knapp, H. H. Fisk, A. Benjamin, P. Daly, G. J. Hanley, J. P. S. Dunn, J. R. Bryce, S. Barron, L. E. Napier, F. B. Martin, W. M. Shepherd, D. F. Borrie, T. C. D. Watt, W. J. Woodman, J. E. J. R. Kelly, M. W. Cantor, C. J. A. Woodside, R. G. Sterling, E. G. B. Calvert, S. H. Wilkinson, L. H. D. Thornton, S. Honeyman, H. D. Robb, A. A. W. Petrie, E. S. Chapman, E. J. Dyke, W. R. Watt, A. L. Weakley, C. G. Adams, D. Cogan, M. Graves, M. P. Thomas. Temp. Capt. M. M. Cruickshank (on appointment to the Indian Medical Service). Temporary Honorary Captains retaining the honorary rank of Captain: W. H. Irish, D. R. W. Crile. Temporary Lieutenants retaining the rank of Lieutenant: C. M. Bradley, W. H. Brooks, J. C. Carr, R. C. Redman. Temp. Hon. Lieut. P. A. E. Sheppard (retains the honorary rank of Lieutenant).

Canadian Army Medical Corps.

Temp. Lieut.-Col. F. C. Bell, C.M.G., to be temporary Colonel.

Temp. Maj. F. V. Woodbury to be temporary Lieutenant-Colonel.

Temp. Capt. (acting Major) A. J. Lomas to be temporary Major.

The undermentioned officers retire in the British Isles: Temp. Maj. H. J. Williamson, Temp. Capt. C. R. Worthington.

SPECIAL RESERVE OF OFFICERS.

Capt. F. H. Goss relinquishes the acting rank of Major on re-posting.

Capt. G. E. Kidman to be acting Major whilst specially employed.

TERRITORIAL FORCE.

1st Northern General Hospital: Major (Brevet Lieut.-Col.) (acting Lieut.-Col.) R. A. Bolam relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

2nd London Sanitary Company: Capt. (acting Major) A. G. G. Thompson relinquishes the acting rank of Major on ceasing to be specially employed. Lieut. A. R. Ward to be Captain.

2nd Northern General Hospital: Major (acting Lieut.-Col.) J. K. Jamieson relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed and is restored to the establishment.

2nd Scottish General Hospital: Capt. J. G. Cattanach is restored to the establishment.

1st Southern General Hospital: Lieut.-Col. (Brevet Col.) F. Marsh is restored to the establishment.

1st Eastern General Hospital: Maj. (acting Lieut.-Col.) H. B. Roderick relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed and is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch: Lieut-Col. N. H. Harris (Surg.-Cmdr., R.N.) relinquishes his commission on ceasing to be employed.

Flying Officer A. E. Collie to be Flight Lieutenant.

Flight Lieut. F. H. Wallace is transferred to unemployed list.

Dental Branch.—Flying Officers to be Flight Lieutenants: A. S. C. Cottam, H. O. Salt.

THE HONOURS LIST.

The *Military Cross* has been awarded to Lieut. John Morrison, R.A.M.C., Spec. Res. The official record says: "He has done exceptional work since joining the battalion. He superintended the successful evacuation of wounded on Oct. 12th, 1918, at Seltso under shell fire, at short notice. He accompanied the attacking forces when Topsa was attacked, and gallantly carried on his work under close enemy fire. By his energy and devotion to duty throughout these operations he was the means of saving many lives."

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Second Professional Examination in Anatomy and Physiology, held on Sept. 25th, 26th, and 29th, 59 candidates presented themselves, of whom 31 were approved and 28 were rejected. The following are the names of the successful candidates:—

Madeleine Harvey Clarke, London Sch. of Med. for Women; T. H. R. Davies, Univ. Coll.; H. S. Drabble, Sheffield Univ.; M. A. El Biblawi, Cairo and Guy's Hosp.; E. P. Evans, Univ. Coll., Cardiff; L. R. Fifield, London Hosp.; H. B. Flooks, Univ. Coll., Cardiff; G. H. Froggatt, Sheffield Univ.; R. M. Fry, St. Mary's Hosp.; L. J. Gabe, Middesex Hosp.; T. J. E. Gittins, Birmingham Univ.; Janet Vera Good, London Sch. of Med. for Women; Hilda Mary Kennedy, Univ. Coll.; W. Laing, St. Bart.'s Hosp.; Mary Catherine Lynch, Edinburgh and King's Coll.; J. I. Lyons, King's Coll.; Margaret Stewart Maclachlan, Univ. Coll.; W. McLaren, Durham Univ.; W. E. Mitchell, Manchester Univ.; H. W. Needham, St. Bart.'s Hosp.; A. E. Parkes, Birmingham Univ. and St. Bart.'s Hosp.; J. H. Piddock, Birmingham Univ.; P. D. Richards, Cardiff and St. Bart.'s Hosp.; A. R. Rutnam, Ceylon Med. Coll.; K. E. Shellshear, St. Bart.'s Hosp.; O. L. C. Sibley, Middlesex Hosp.; Y. S. Soliman, St. Thomas's Hosp.; A. D. Stammers, Cambridge Univ.; H. R. J. Thomas, London Hosp.; Marian Elspeth Williams, London Sch. of Med. for Women; G. B. Withers, London Hosp.

UNIVERSITY OF MANCHESTER.—At examinations held in September the following candidates were successful:—

DIPLOMA IN DENTISTRY (SECOND EXAMINATION).

Dental Mechanics.—Robert Ackers, Elizabeth Benson, P. A. Gardner, J. L. Halliwell, John Hopkins, R. A. Lewty, H. V. Longson, Mary H. Sherry, J. H. Spedding, and Gracie Walker-Anderson.

Dental Metallurgy.—Robert Ackers, Sidney Booth, C. C. Breakell, P. A. Gardner, J. L. Halliwell, H. V. Longson, Mary H. Sherry, and J. H. Spedding.

UNIVERSITY OF GLASGOW.—The following degrees were conferred on Oct. 6th:—

Bachelor of Medicine and Bachelor of Surgery (*M.B., Ch.B.*).—John Smith Aitken, Thomas Anderson, Duncan MacCallum Blair (with honours), Samuel Burnside Borthwick, James Caddies (with commendation), Elizabeth Pace Cameron (with commendation), Archibald Joseph Cronin (with commendation), Edith Dennistoun Dobbie, John Hill, Francis McDonald, Ellen Thomson Mackenzie, Margaret Elizabeth MacLaren, Caroline Jane Maclennan, Douglas John Nicol, Kathleen Nicol, Andrew Glen Petrie, Henry Alexander Ross, Catriona Sinclair, Herbert Harold Spencer, Donald McDougall Sproull, Noel Eustace Stone, John Whitelaw, and William Alexander Wilson.

Mr. John William Peden, who graduated on April 4th, 1919, gains the Brunton Memorial Prize of £10 awarded to the most distinguished graduate in medicine of the year.

THE Prince of Wales has consented to preside at a festival dinner in aid of the Great Northern Central Hospital early in December.

GUY'S HOSPITAL MEDICAL SCHOOL.—The following entrance Scholarships have been awarded:—Senior Science Scholarship for University Students (£75), Arthur Henry Douthwaite, University College, London. Junior Science Scholarships (£120), Thomas Stephenson Blacklidge; (£50), William Gordon Sears, both Preliminary Science Class, Guy's Hospital Medical School. Scholarships in Arts (£60), Donald Fraser Durward, St. Olave's Grammar School; (£40), Oswald Fred Farndon, Rhyl County School.

TUBERCULOSIS SOCIETY.—A special dinner of this society, at which many of the distinguished foreigners attending the Conference of the National Association for the Prevention of Tuberculosis will be present, is to be held in Claridge's Hotel on Wednesday, Oct. 15th, at 7.30 P.M. Applications for tickets (inclusive of wine), together with remittance, 30*s.*, should be sent to Dr. F. J. C. Blackmore, Woolwich Tuberculosis Dispensary, Maxey-road, Plumstead, S.E. 18, not later than by last post on Monday, Oct. 13th. A certain number of tickets are available for guests.

THE MEDICAL SOCIETY OF LONDON.—The programme for the first half of the winter season begins with the annual general meeting on Oct. 13th, at 8 P.M., followed by the presidential address from Mr. V. Warren Low and a paper on Angina Pectoris by Dr. F. de Havilland Hall. On Oct. 27th, at 8 P.M., Colonel A. L. A. Webb will open a discussion on the Reclassification and Treatment of Pensions, in which Sir A. Pearce Gould, Lieutenant-Colonel E. L. Gowlland, and Captain R. McNair Wilson will take part. Nov. 10th is a clinical meeting. On Nov. 24th Dr. S. P. James will introduce a discussion on the Treatment of Malaria. Further details will be given in the Medical Diary. Dr. Herbert R. Spencer is to deliver the Lettsomian lectures in February and March, 1920, and Sir D'Arcy Power the annual oration in May, 1920.

THE Wellcome Historical Medical Museum will be reopened on Monday next, Oct. 13th.

MEDICAL MAYOR.—Dr. Henry Arthur Latimer, J.P., has accepted a unanimous invitation of the corporation of Tunbridge Wells, of which he has been a member since 1914, to be the chief magistrate in the coming municipal year.

DONATIONS AND BEQUESTS.—The late Sir Andrew McDonald, of Edinburgh, has left by will £1000 each to the Edinburgh Royal Infirmary and to the Royal Edinburgh Hospital for Incurables (Longmore Hospital), and £500 each to the Royal Hospital for Sick Children, Edinburgh, and the Scottish Blinded Soldiers' and Sailors' Hostel.

Colonel James Turton, F.R.C.S., has been placed on the commission of the peace for the borough of Brighton. In 1894 Colonel Turton raised the Sussex and Kent Volunteer Infantry Brigade Bearer Company, which was the first Bearer Company in the Volunteer Force. He commanded the company for 10 years.

ROYAL SANITARY INSTITUTE.—On Friday, Oct. 17th, at 6.30 P.M., in the Town-hall, Poole, a discussion will take place on Influenza, to be opened by Dr. A. T. Nankivell, medical officer of health, Poole, and on Food Inspection, to be opened by Mr. F. St. B. Ramsden, inspector of nuisances. Dr. Louis C. Parkes will preside.

Dr. T. M. Bonar, of Probus, Cornwall, has resigned the appointment of medical officer of health of the Truro Rural District and district medical officer of the Truro Union after 30 years' service.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The thirty-eighth session of the society opened at the West London Hospital on Oct. 3rd with the induction of the new President, Mr. Herbert W. Chambers, and the presentation of the Keetley Memorial Medal to the retiring President, Lieutenant-Colonel E. M. Wilson, C.B., C.M.G., D.S.O. Mr. Chambers delivered his presidential address on London Medical Societies, a Glimpse of their History and Work.

Dr. Edward Hindle, Kingsley Lecturer and Bye Fellow of Magdalene College, Cambridge, Assistant to the Quick Professor of Biology, has been elected to the Chair of Biology in the School of Medicine, Cairo, Egypt.

AT a meeting of the Wiltshire branch of the British Medical Association held at Trowbridge on Sept. 28th the following resolution was passed:—

"That notice be given to the Friendly Societies that in six months time medical men in Wiltshire will only accept members for attendance at the same rates and terms as may then be agreed to for insured persons. For children under 16 years of age and persons in necessitous circumstances special rates shall be arranged."

ROYAL PORTSMOUTH HOSPITAL.—At a meeting of governors of the Royal Portsmouth Hospital held on Oct. 3rd it was reported that the attendance for treatment in the venereal department now exceeded 400 weekly. The cost of the department, which is in course of extension, was stated to be £2000 per annum: it had been necessary to engage a medical clinical assistant and additional orderlies. As the result of an application made to the British Red Cross Society an up-to-date X ray apparatus, formerly used at King George's Hospital, has been given. Arrangements have been made for the treatment of war pensioners in the wards and also for pensioners requiring massage and electrical treatment; in consequence of the strike a number of men unable to get to Netley Hospital have been treated at Portsmouth.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MEETINGS OF SECTIONS.

Wednesday, Oct. 15th.

HISTORY OF MEDICINE (Hon. Secretaries—Arnold Chaplin, F. G. Crookshank): at 5 P.M.
Paper:
Mr. M. W. Hilton-Simpson: Some Arab and Shawia Remedies.

Thursday, Oct. 16th.

DERMATOLOGY (Hon. Secretary—Henry MacCormac): at 4.30 P.M.
Cases will be shown by:—
Dr. H. W. Barber: (1) Acanthosis Nigricans; (2) Premycosic Erythrodermia (two cases).
Dr. G. Pernet: Granuloma Annulare.
Dr. W. K. Sibley: Onychia (trophic).

Friday, Oct. 17th.

ELECTRO-THERAPHUTICS (Hon. Secretaries—Walter J. Turrell, Stanley Melville): at 8.30 P.M.
Presidential Address by Dr. A. E. Barclay.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.
MONDAY, Oct. 13th.—8 P.M., Annual General Meeting. 8.30 P.M., Ordinary Meeting. Presidential Address:—Mr. V. W. Low, C.B. Paper:—Dr. F. de H. Hall: Angina Pectoris with Low Blood Pressure.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE, in the Clinical Theatre of the Hospital.
A Special Course of Instruction in the Surgical Dyspepsias will be given by Mr. A. J. Walton:—
MONDAY, Oct. 13th.—4.30 P.M., Lecture XXI.:—Symptoms, Complications and Treatment of Gall Stones.
FRIDAY.—4.30 P.M., Lecture XXII.:—Etiology and Pathology of Acute and Chronic Pancreatitis.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Room of the Institute, 37, Russell-square, W.C.
Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries &c.
THURSDAY, Oct. 16th.—5 P.M., Lecture II.:—Dr. L. S. T. Burrell: Predisposing Causes of Pulmonary Tuberculosis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY, Oct. 15th.—4.30 P.M., Lecture:—Dr. P. H.-S. Hartley: Pneumothorax.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Oct. 14th.—Lecture:—Dr. E. S. Reynolds: The Diagnosis of Affections of the Spinal Cord.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALLAN, J., M.D., B.Ch. Edin., D.P.H., has been appointed Assistant Surgeon, West of England Eye Infirmary, Exeter.
BIRD, G. W. H., M.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., Medical Officer for the Bridgwater (Somerset) Workhouse.
CROMPTON, K. E., B.A., M.B., B.C. Cantab., Medical Officer and Public Vaccinator for Wotton-under-Edge (Gloucestershire).
STRATFORD, H. M., F.R.C.S. Edin., Honorary Surgeon to the Westminster General Dispensary.
Cambridge University: ADRIAN, E. D., M.B., B.C., Junior Demonstrator in Physiology; MARRACK, J. R., M.B., Lecturer in Pathological Chemistry; ROBERTS, F., M.D., Additional Demonstrator in Physiology.
Certifying Surgeons under the Factory and Workshop Acts: BLOOD, H. F., L.R.C.P. & S. Irel. (Belper); GOODALL, C. C., M.R.C.S., L.R.C.P. Lond. (Staveley); KING, F. J. O., M.B., B.Ch. Dub. (Brigg); SHEPPARD, H. P., M.B., Ch.B. Aberd. (Wadebridge); MACARTHUR, W. F., M.B., C.M. Edin. (Port Glasgow).

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital for Genito-Urinary Diseases, Vauxhall Bridge-road, S.W.—Hon. Asst. S. Also H.S. £100. Also Clin. Assts.
Battersea General Hospital, Battersea Park, S.W.—Res. M.O. £200.
Bedford County Hospital.—Res. M.O. £150.
Belgrave Hospital for Children, Clapham-road, S.W.—H.P. and H.S. £100 and £75. Also Two Asst. P's.
Beverley, East Riding Education Authority.—Sch. Dent. £350.
Birmingham and Midland Ear and Throat Hospital.—S. and Asst. S.
Bolingbroke Hospital, Wandsworth Common, S.W.—S. Also Res. M.O. and H.S. £200 and £150.
Bristol Education Committee.—Asst. School M.O. £500.
Burton-upon-Trent County Borough.—Asst. M.O. £400.
Burton-on-Trent Infirmary.—H.S. £200.
Cancer Hospital, Free, Fulham-road, London, S.W.—Asst. S.
Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £300.
Chelmsford, Essex Education Committee.—School Med. Inspcts. £400.
Croydon County Borough.—Clin. Tuberc. O. £550. Also Asst. M.O.H., Maternity and Child Welfare Work. £500.
Derby, Derbyshire County Council.—Tuberc. O. £500.
Dewsbury and District General Infirmary.—H.S. £250.
Dorchester, Dorset County Council Education Committee.—School Dentists. £400.
Dudley County Borough Education Committee.—Asst. School M.O. and M.O.H. £500.
Dumfries, Crichton Royal.—Asst. P. £350.
Dundee District Asylum.—Asst. M.O. £325.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.P. £125. Res. M.O. £200. Radiologist. £100.
East Riding Education Authority.—School Dent. £350.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Clin. Assts. Res. M.O. at House of Recovery, New Barnet. £60. (All Female appts.)
Evelina Hospital for Children, Southwark, S.E.—Hon. Phys. for Skin Dept. Also Hon. Dent. Surg.
Frimley, Brompton Hospital Sanatorium.—Med. Supt. £600. Also Asst. M.O. £250.
German East Africa Occupied Territory.—M.O.'s. £400–£20–£500.
Gloucester County Asylums.—Jun. Asst. M.O. £300.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—Asst. S.
Hackney Union Infirmary, 230, High-street, Homerton, E.—Junior Asst. M.O. £250.
Halifax Royal Infirmary.—Male Attendant for Venereal Department.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—S. to Out-patients, Clin. Asst. in the Ear, Nose, and Throat Department, Two P.'s to Out-patients, and P. for Diseases of the Skin.
Hereford County and City Mental Hospital.—Senior Asst. M.O. £350.
Home Office, Reformatory and Industrial Schools Department.—Medical Inspector. £500.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—S. H.P. for six months. 30 gs. Asst. Res. M.O. £150. Asst. P. £250. Asst. in Dept. of Path. £250. Part-time Asst. in Dept. of Path. £250.
Hospital for Diseases of the Throat, Golden-square, W.—Hon. Asst. S.'s.
Huddersfield County Borough Education Authority.—Asst. School M.O. £400.
Huddersfield Royal Infirmary.—Asst. H.S. £100.
Hull, City and County of Kingston-upon-Hull.—Res. M.O. £450.
Ipswich, East Suffolk and Ipswich Hospital.—H.P. £250.
King's College Hospital, Denmark Hill, S.E.—Senior Orthopædist, Junior Orthopædist, Junior Neurologist, and Junior P.
London Homœopathic Hospital, Great Ormond-street, Bloomsbury, W.C.—M.O. for Electro-Therapeutical Dept.
Maidstone, West Kent General Hospital.—H.P. £200. Also Second Hon. Anæsthetist.
Manchester, Ancoats Hospital.—H.S. £100.
Manchester, Booth Hall Infirmary for Children, Charlestown-road, Blackley.—Asst. Res. M.O. £300.
Middlesbrough, North Riding Infirmary.—H.S. £200.
Mile End Old Town Infirmary.—Med. Supt. £400.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—H.P.'s and H.S.'s.
Newport, Mon., Royal Gwent Hospital.—Three Res. M.O.'s £225, £200, and £160 respectively.
Norwich, Norfolk Education Committee.—Asst. School M.O. £400.
Nottingham General Hospital.—H.S. £150.
Oldham Royal Infirmary.—Third H.S. £200.
Plymouth, South Devon and East Cornwall Hospital.—H.S. £200.
Poplar Hospital for Accidents, E.—Jun. Res. M.O. £120.
Rochdale Infirmary and Dispensary.—Junior H.S. £125.
Royal Chest Hospital, City-road, E.C.—Asst. P.'s.
Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. £100.
Royal London Ophthalmic Hospital, City-road, E.C.—Senior H.S. £150.
Ryde, Royal Isle of Wight County Hospital.—Res. M.O. £220.
St. Mary (Islington) Infirmary, Highgate Hill, N.—Asst. M.O. £280.
St. Pancras Tuberculosis Dispensary, 39, Oakley-square, N.W.—Tuberc. Officer. £500.
Scarborough Education Committee.—School Dent. S. £200.
Serbia, Serbian Relief Fund Hospital.—Surg.
Sheffield Royal Hospital.—Asst. Cas. O. £120.
South London Hospital for Women, South Side, Clapham Common, S.W.—H.P. £100.
Wakefield General Hospital.—Jun. H.S. £150.
Warrington County Borough.—Asst. M.O. H. £450.
West Bromwich and District Hospital.—Res. H.S. £200.
Worksop, Victoria Hospital and Dispensary.—H.S. and M.O. £300.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Royton, Farkhill, Hadleigh, and Shildon.

Births, Marriages, and Deaths.

BIRTHS.

BARRINGTON-WARD.—On Oct. 6th, at Harley-street, the wife of L. E. Barrington-Ward, F.R.C.S., of a daughter.
CUNNING.—On Oct. 3rd, at Upper Wimpole-street, the wife of Joseph Cunning, F.R.C.S., of a son.
GREENFIELD.—On Oct. 3rd, at 23, Topsham-road, S.W.17, the wife of J. Godwin Greenfield, M.B., M.R.C.P., of a son.
VIDAL.—On Oct. 3rd, at St. Elmo, Hornsey Lane-gardens, Highgate, the wife of Major A. C. Vidal, D.S.O., R.A.M.C., of a son.
WARREN.—On Oct. 2nd, the wife of Richard Warren, M.D., F.R.C.S., of a son, at 45, Weymouth-street, W.

MARRIAGES.

EASTES—MOORE.—On Oct. 4th, at the Parish Church, Leatherhead, George Leslie Eastes, M.B., B.Sc., of Harley-street, W., to Margaret Emily, only child of Mr. and Mrs. A. H. Moore, of Leatherhead.
HORSLEY—GORDON.—On Wednesday, Oct. 1st, at Christ Church, Clifton, by the Ven. Archdeacon Talbot, D.D., assisted by Rev. H. T. Dixon, D.D., Lancelot Horsley, M.R.C.S., L.R.C.P., younger son of Dr. Henry Horsley, of Croydon, to Grace, younger daughter of Geo. Gordon, Esq., of Bristol.
PHILIP—GAULER.—On August 26th, at the Church of St. John in the Wilderness, Naini Tal, India, James Leslie Rutholn Philip, M.B., Ch.B. Glasg., Captain, Indian Medical Service, to Nellie Hilda, eldest daughter of J. W. Gauler, Sutton Mandeville, Wilts.

DEATHS.

NICHOL.—On Sept. 24th, at Dunkirk, the result of an accident, Edward Frank Nichol, M.C., Captain, 3rd Loyal Lancashire Regiment, dearly loved husband of Edith Frances Nichol, and youngest son of Dr. and Mrs. Nichol, of Margate, aged 22.
ROWORTH.—On Sept. 20th, at St. David's, Chelston, Torquay, Alfred Thomas Roworth, M.R.C.S. Eng., L.R.C.P., aged 77.
WALLS.—On Sept. 30th, at Scarborough, Dr. Wm Kay Walls, of St. John-street, Manchester, the beloved husband of Edith M. Walls.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

RULES FOR THE PRESCRIBING OF BATHS.

BY CHARLES F. SONNTAG, M.D. EDIN.,
PHYSICIAN IN CHARGE OF THE HYDROTHERAPY DEPARTMENT OF THE SPECIAL MILITARY SURGICAL HOSPITAL, SHEPHERD'S BUSH, W.; LATE TEMPORARY CAPTAIN, R.A.M.C.

BATHS may be conveniently arranged in three groups—hot, neutral, and cold—according to their thermal relationship to the temperature of the nerve endings in the skin—i.e., to the so-called zero of temperature sense. The zero varies in different parts of the skin in different individuals and at different times during the day and night. Consequently, a range of temperatures (92°–97° F.) is chosen for the neutral baths, because their heat corresponds to the physiological zero. Hot baths have a temperature from 97° upwards, and cold baths have a temperature below 92°. For therapeutic purposes these three ranges are subdivided as follows: Very hot baths, temperatures above 104°; hot, 97°–104°; neutral, 92°–97°; tepid, 80°–92°; cool, 65°–80°; cold, 55°–65°; very cold, below 55°.

Both hot and cold baths give rise to definite nervous and circulatory changes in the body. At the moment of application, the changes induced are called the action effects, but, sooner or later, the so-called reaction phenomena, which have a totally opposite character, appear. Cold has a depressing action, but the reaction to it is tonic or invigorating. Heat, on the other hand, stimulates in action and depresses in reaction. The prescription must be drawn up so as to attain, in the majority of cases, the reaction to cold and the action of heat. The four factors which must be definitely stated are the type of bath, its temperature and duration, and the nature of any mechanical stimulation, such as massage under water.

Hydrotherapeutic treatment must be ordered and regulated on physiological principles, a condition which is frequently disregarded. When whirlpool baths were introduced in 1916, it was the custom to prescribe them at a temperature which was the limit of toleration by the patient. No account was taken of the facts that tissues have their functions lowered by high temperatures. Moreover, the limbs which were submitted to the baths had their vitality so diminished by trauma or sepsis that high temperatures were more liable to be injurious to them.

Hydrotherapeutic measures can be divided into two classes—full or general, and local. In the former the trunk and limbs are immersed, but in the latter the application is made to one or more limbs or to a restricted area of the trunk. In the former the temperatures must be lower and the durations shorter than in the latter group.

Hot Baths.

Hot baths produce stimulation or excitement at the moment of immersion, but sooner or later they cause depression and the intensity of these changes depends on temperature and duration. All hot applications will, in time, cause death of the tissues. Cohnheim showed how the leg of a rabbit perishes instantly at 129° F., but it can be exposed, with safety, for a considerable period to the temperature of 107·6°. There is, therefore, a point, called the optimum, at which immersions can be prolonged and at which the activities of the tissues are greatest.

Local Hot Baths.

One of the notable therapeutic advances which have resulted from the war is the employment of local hot baths in the treatment of diseases and injuries of the skin, muscles, bones, joints, and nerves. The measures employed are turbine, aeration, paraffin, and radiant-heat baths.

At the Red Cross clinic in London, which was the pioneer establishment in this country, I carried out a number of investigations into the effects of local hot baths on the irritability of the muscles. The objects of the experiments, in which I had the able assistance of Mr. M. King, was to settle the optimum temperatures and durations of the different procedures. The result of nearly a hundred experiments was that all hot-water baths had an optimum temperature of 108° F. for prolonged applications, such as 20 minutes. Some baths were more stimulating than others, as is shown in the following table, which embodies the results.

The figures give the foot pounds of work done by the right flexor sublimis digitorum, before it was fatigued, after being immersed in the baths for 20 minutes. The control muscle gave out 27·02 foot pounds of work.

Table showing the Effects of Local Hot Baths on the Irritability of the Muscles.

Work done by a muscle in foot pounds after immersion in—	Temperature (Fahr.).					
	95°	100°	105°	108°	109°	110°
Still water	33·81	38·45	49·04	54·12	39·38	32·18
Turbine	47·70	49·25	50·33	52·12	51·56	47·98
Air and turbine ...	49·56	50·05	51·96	53·02	43·47	42·17
Aeration	49·89	49·97	52·46	57·35	53·57	40·43

The temperature for a local bath should, therefore, be 108° for prolonged immersions, and the duration for higher temperatures is shown in the following table:—

Temperature.	Duration.	Temperature.	Duration.
108° F.	20 min.	114° F.	10 min.
110°	12 ,,	116°	9 ,,
112°	11 ,,	118°	8 ,,

The temperature and duration appropriate for each case depends on the resistance of the skin, the condition of the peripheral nerves, and the presence or absence of sepsis. If the skin has diminished resistance to thermic irritation owing to a lesion of the peripheral nerves, or if it has thin, delicate scars, one must be careful in prescribing baths. In the former case, trophic ulcers may appear, and, in the latter, if the bath is too hot, the tissues may break down. In these cases I begin with a 20-minute application of radiant heat at the temperature of 150°. It is dry heat, and it can be tolerated easily on that account. As the case improves I prescribe an aeration bath at 105°, rising by degrees to 108° for 20 minutes. Eventually the temperature is raised to 110°, and the duration is cut down to 12 minutes. If the skin is healthy, and the object of treatment is to manipulate stiff joints or to free dense adherent scars, I prescribe 110° for 12 minutes at the outset, and the same order is given for a bath before massage and electrical treatment when the nerve exhibits well-marked signs of recovery.

Paraffin baths consist of molten paraffin wax, and are employed for local immersions only. Their therapeutic range is 120°–130° F., and their duration is ten minutes. Injuries and diseases of the leg are treated at the lower point, and of the arm at the higher temperature. The temperature employed is higher than that of water, because the wax has a lower specific heat, and a layer of it condenses on the skin in a few seconds. The thermal stimuli are not so intense as in water, and they only act for a few seconds. The indications and precautions are the same as for water baths, and a case may be submitted in succession, as it progresses, to radiant heat, water, and paraffin baths.

Full Hot Baths.

Full hot baths have a pronounced effect on the circulation, and the duration for each degree of heat applied can be established from the changes so produced. If we examine the pulse of a patient at three-minute intervals before and during a full hot bath, we see a sequence of changes which are constant in type for temperatures between 98° and 106° F., but above the latter point the characters are different and harmful. There is, moreover, no indication for a full hot bath at a temperature exceeding 106°. Between 98° and 104°, the pulse first slows down, but after a variable period it accelerates again, and the rate increases till a point is reached at which it remains constant. A steady level is then maintained for a longer or shorter period, till it is terminated by a series of fluctuations, and the general level of the chart drops. Above 106° the pulse shows paralytic dilatation from the start. I take the period when the oscillations begin as the maximum duration for the bath. The changes and durations are shown in the following table:—

Temperature of the bath.	Pulse-rate before.	Maximum retardation.	Maximum acceleration.	Time of onset of oscillation.
				Minutes.
106° F.	80	None.	104	8
104°	92	69	102	20
102°	92	72	94	22
100°	80	74	92	23
98°	80	78	80	27
96° (Neutral).	80	76	None.	30

The above table shows that the duration of the bath should decrease in all cases with a rise in its temperature. The bath first produces peripheral vaso-constriction and internal vaso-dilatation, so that headache and other symptoms may appear. When the cutaneous vessels dilate, the internal ones are depleted of blood and cerebral anæmia is produced, with possible syncope, to prevent which the face should be sponged with cold water before all baths whose temperature exceeds 100° F., and a wet towel wrapped round the head. The cerebral capillaries are thereby reflexly constricted, and they do not experience violent circulatory changes.

The therapeutic uses of the full hot bath can be arranged in the following groups, and the temperature and duration of the bath depend on the object in view in treatment.

1. *As a healing measure.*—It is a cardinal rule of hydrotherapeutic practice never to apply cold to the whole body unless the skin has been heated up previously. When tonic measures are indicated in sluggish metabolism, paralysis following diseases and injuries of the brain and spinal cord, weakness of the vaso-motor centres, and the debility of anæmia and convalescence, I prescribe the following treatment: Immerse the patient in the full hot bath (aerated if the apparatus is at hand) at the temperature of 102° F. for 20 minutes, followed by a Scottish douche, with the hot jet at 105° and the cold one at 60°–70°, and the pressure regulated to suit the case.

2. *As an eliminating measure.*—During fatigue and exhaustion very hot baths are indicated and *cold baths are absolutely forbidden*. The bath must be both hot and brief in duration. A useful prescription is a full hot bath, at a temperature of 104°, for nine minutes, followed by rest.

3. *As an anti-spasmodic measure.*—The spasmodic conditions in which hot baths are of value are spastic paraplegias and vascular spasm, and crises which occur in arterio-sclerosis, nephritis, plumbism, &c. In these cases the bath must not be too hot as a prolonged action is desired. The temperature and duration should be 102° for fifteen minutes, followed by rest. Care must be taken to prevent the patient getting into draughts, for the cold air will act on the heated skin and favour the return of the spasm.

4. *As an analgesic measure.*—Dysmenorrhœa with spasm and pain should be treated as in Group 3.

Neutral Baths.

A neutral or indifferent bath has a temperature the same as that of the nerve-endings in the skin (92°–97°). Such baths are not followed by circulatory, thermic, or nerve reactions, so they can be prolonged indefinitely. They cut off the thermic and mechanical stimuli from the skin and allow the nervous and circulatory organs, which are always in a state of activity responding to the environmental impressions, to rest. The bath is useful in shell shock, traumatic neurasthenia, extensive burns, delirium and mental excitement, exhaustion, and fever.

Cold Baths.

Cold baths may be brief or prolonged. In the former category we include plunge baths and, in the latter, the cold friction bath for enteric fever and the Nauheim bath for cardiac diseases. In the prolonged baths there are certain mechanical and chemical adjuncts which permit of the long application of cold stimuli. The mechanical friction in the cold bath for fever maintains a powerful rhythmic activity of the peripheral circulation, and the carbonic acid gas bubbles in the Nauheim bath confer a sensation of warmth on the patient by a selective action on the heat spots of the skin.

Cold plunge baths.—These baths are employed for hygienic purposes, and their duration is from three to five seconds. Their temperature varies from 45°–60° according to the season. In winter low temperatures can easily be procured, but the average domestic cold water-supply will lie between 50° and 60°. They must be preceded, accompanied, and followed by friction to warm the skin and promote reaction.

The Brand bath is the cold friction bath which yields excellent results in enteric fever by soothing the nervous system. Contrary to the generally accepted but quite erroneous view, its antipyretic action is a secondary consideration. The temperature of the water is 70°–65° and the duration is from 15–20 minutes. The initial bath, which is to be administered when the patient's temperature reaches 103°, is at 70°, and subsequent baths are at temperatures of 1° lower till 65°, the minimal point. The adjuncts to the bath are: (1) affusions to the head and neck which are to be applied at the temperature of 50° every five minutes; (2) a damp towel which is to be wrapped round the head during treatment; (3) frictions during the bath of all parts of the body except the abdomen.

The graduated bath of von Ziemssen is employed by some in preference to the Brand bath in enteric fever. The patient is immersed at the temperature of 90° and cold water (40°) is added, and water is removed till the temperature is 72°. Friction is also applied. The duration of treatment is 30 minutes.

Alternating Applications.

In alternating applications the part is exposed first to heat, then to cold for a shorter period, and that succession is repeated several times daily at each sitting. Two forms are used extensively in hydrotherapy departments: (1) the

contrast bath, (2) the Scottish douche. The essential difference between them is that thermal stimuli operate alone in the former and are supplemented by mechanical impact in the latter. Their temperatures and durations are shown in the following table:—

Bath.	Hot application.		Cold application.	
	Temperature.	Duration.	Temperature	Duration.
Contrast	116° F.	30 sec.	40°-50° F.	15 sec.
Scottish douche	110°-115°	30 ,,	50°-65°	15 ,,

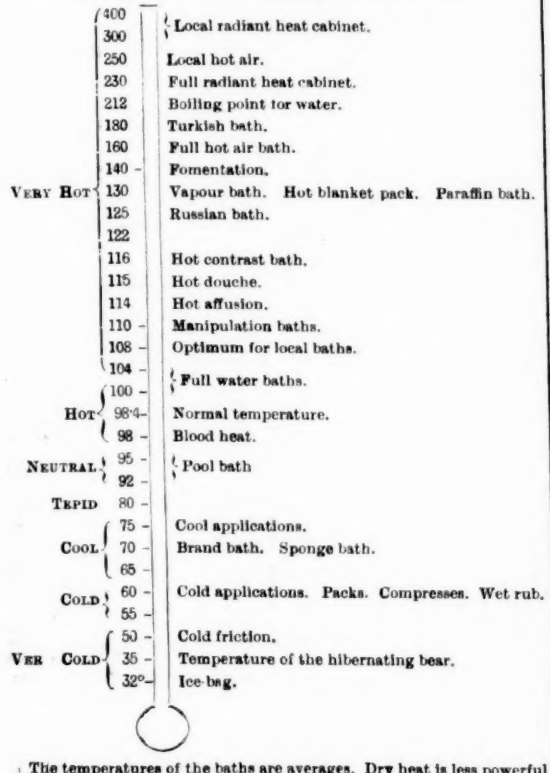
These hot and cold applications are repeated each day for 15 minutes in the contrast bath, and for from three to five minutes in the douche, and the indications are shown as follows:—

Contrast bath.	Douche.
Chronic stage of trench foot.	As a sequence to hot baths.
Vaso-motor paresis after:—	Debility of:—
(*a*) Prolonged splinting.	Anæmia,
(*b*) Prolonged sepsis.	Convalescence,
Flat-foot and talipes with anæmia and profuse perspiration.	Neurasthenia.
	Malingering. (N.B. — The pressure of the water is to be maximal.)

Conclusion

From what has already been described it is obvious that baths of different kinds are powerful agents. If they are prescribed in accordance with the rules given above the patient will experience untold relief or cure, but, if not, much harm may ensue. Although they are not so deadly as drugs erroneously prescribed, they can produce much discomfort and suffering if they are used in defiance of physiological principles. As the result of much clinical experience I have been led to discard medicines to an increasing extent in favour of hydrotherapeutic procedure, and I am so sure that others who try these methods will come to the same conclusion that I would put in an urgent plea for the greater use of baths by the medical profession. I submit a diagram which has been found useful by my assistants at Shepherd's Bush.

Diagram of a Hydrotherapeutic Thermometer.



The temperatures of the baths are averages. Dry heat is less powerful than moist heat and it can be used at higher temperatures. Dry cold is not so depressing as moist cold.

CAUSE AND EFFECT.

SUCH problems as the following, concerning the hen and the egg, and the worm and the duck, are always intriguing. The duck eats the worm, but in course of time the worm assuredly eats the duck. Who started? The population of Egypt suffers to an extent hardly realised in this country from bilharziasis, as will be gathered from two communications in our columns this week. The life-history of the parasite is well known. The bilharzia is a flat worm from whose intermediate host, the fresh water mollusc, the larvæ are discharged into water and pierce the skin of those humans who bathe therein, the worm finding its way back to the water in the excretions of man. Europeans are now protected from this disease by bathing regulations, but as regards natives such regulations would be impossible to enforce, and apparently the authorities have come to look on this infection as a plague of Egypt which nothing but divine intervention can eradicate. It is proverbial, however, that those who do not attempt to help themselves receive no aid, and Dr. Elgood and Dr. Cherry have advanced a theory which should anyhow have a thorough trial on the modest scale indicated by them. They claim to have proved that snails are absent from those ponds to which ducks have free access, and are convinced that if the keeping of ducks by natives were officially encouraged, the intermediate hosts and thus the parasite would be stamped out, or at any rate kept in bounds. Their idea of a bonus for birds of specified quality for table use suggests eventual cold storage for export and perhaps a substantial local source of revenue. We may have here a solution of one of the problems which has puzzled many thinkers—at any rate, whoever started bilharziasis we may confidently hope that the duck will end it.

CHILD WELFARE.

THE pamphlet on child welfare, which has recently been published by the Ministry of Reconstruction ("Reconstruction Problems: No. 33, Child Welfare"), will well repay perusal by those whose work or interest brings them into touch with the children of the poor. It contains a short and concise account of the child welfare problem as it exists at the present time, using the term in its widest sense.

The pamphlet opens with a discussion and explanation of infant mortality and its causes, and describes briefly what has already been done to overcome the many dangers which beset infant life. Under such headings as "Supervision of the Infant in the Home," "Supervision of the Infant at the Infant Welfare Centre," "State Aid," &c., infant welfare work is traced to its beginnings, and much valuable information is given, included in which are the provisions of the Notification of Births Act, 1907, of the Notification of Births Extension Act, 1915, and of the Child Welfare and Maternity Act, 1918, together with a description of Infant Welfare Centres and their work, and the functions of the Local Government Board and Board of Education with regard to infant welfare, which have been taken over by the Ministry of Health. Little is said, however, on the all-important subject of antenatal mortality, and on the urgent need for supervision during pregnancy, and for a more thorough investigation of the causes of stillbirth than is carried out at the present time. The section on the child from 2 to 5 years includes a paragraph on measles and whooping-cough, and a brief but comprehensive description of day nurseries and nursery schools. Part II. deals with the welfare of the child at school and gives an account of the school medical service and its administration, medical inspection, the school clinic, open-air education, and the various kinds of special schools which have been set up and in which children who are defective, either physically or mentally, are taught. This little book embodies in a comprehensive way information which is essential for all practitioners of medicine, and which is so often asked for by the non-medical public.

Importance of the Children's Health Realised.

Public health work has changed so much during the past few years that it is difficult for the practitioner to keep in touch with it; its ramifications are so great and so far reaching that only a proportion of them is likely to come within the purview of one doctor. Nevertheless, they are but branches of a composite whole, an understanding of which is necessary if full opportunities are to be taken of them and the greatest possible benefit to the public health is to be secured. Never before has the importance of the children's health been so fully realised. All who are engaged in the task of treating the sick know the amount of disease which exists among their own patients, but it needed the greatest war in history to demonstrate the amount of incapacity there is in the nation as a whole. Incidentally we discovered that much, if not most, of this incapacity is preventable in early life, and that if we want to rear a healthy population we must ensure a healthy childhood. The pamphlet on child welfare has therefore been published at a most opportune moment,

giving, as it does, an account of what has been done to preserve child life and health, which will prove useful alike to the medical and non-medical reader. Hardly enough stress has been laid, perhaps, on the need for instruction in mothercraft both to mothers and to the elder girls at school. It cannot be insisted upon too emphatically that the time to train the mother is while she is still at an age when it is possible for her to learn, while her brain is impressionable, and while she has time and leisure to think. Much of the good which might be done at an infant welfare centre or at a children's hospital is abortive, because in many cases the mother is unable to profit by the advice given to her. She is too ignorant to understand the most simple instructions, or is mentally incapable of grasping new facts. A table of statistics taken from the Report of the Registrar-General for 1911 shows that the mortality of upper- and middle-class children is only 76·4 per cent., that of the children of unskilled workers is 152·5 per cent., and that of the children of all classes is 132·5 per cent. It is questionable whether the lower infant mortality rate among the children of the well-to-do is not due to the skilled care which is available for them more than to their hygienic environment. Medical officers of infant-welfare centres fully realise that good mothercraft is, if the choice has to be made, a more valuable asset in rearing a healthy family than good housing and sanitation, however urgently needed these may be. As far as day nurseries are concerned we are still behind the times. There is no definite standard to which all must attain, notwithstanding the efforts which have been made by the National Society of Day Nurseries. State grants are given only to those nurseries which are under medical supervision, and in some cases that supervision is not as close as it should be.

Nutrition of Children Improved during the War.

Much anxiety was felt during the war as to whether the children had suffered from lack of food. The general opinion among those who were carrying out school medical inspections was that the children were never so well cared for and so well fed. In many cases the mothers were better off than they had ever been. As is pointed out in the pamphlet, soon after the outbreak of war the number of children fed (in the elementary schools) reached its maximum, but before long the distribution of separation allowances, the rise in wages, and the increase in employment caused the number fed to become less than at any period since 1906. The nutrition of the children has, on the whole, improved during the war, and defects have usually been due to circumstances other than inability of parents to procure food.

In London, at any rate, there are ample means for medical treatment for school children. There remains, however, the difficulty of persuading the parents that treatment is necessary; many are very obdurate in this respect, and it is only in extreme cases that a charge of neglect can be upheld. If every child on leaving school had to be certified as medically fit before being employed, this in itself would bring pressure to bear indirectly on parents who were careless or neglectful.

HYGIENE ON BOARD SHIP.

H.M.S. *Hawkins*, which is proceeding to China as the new flagship, has special recreation-room accommodation on board for the crew, and dish- and plate washing machines also are established, so the mess gear is taken in after each meal and re-issued a quarter of an hour before the next. This washing of the mess traps in water that is really boiling should do a great deal to keep down the number of cases of sore-throat. A statement from the Admiralty, say in April, 1921, that in 1920 there had been more, the same, or fewer, cases of sore-throat in ships with washing machines for mess traps would be welcomed, and might do something to encourage those responsible for large establishments to instal these conveniences. They certainly should make for better health.

SPECIMEN CASE-PAPERS.

WE have received from Dr. Astley V. Clarke, senior physician to the Leicester Royal Infirmary, specimen case-sheets devised by him and accepted for use at that institution. House physicians who leave resident posts at their own hospitals for work at non-teaching institutions are apt to find the clerical work irksome, with the result that where chiefs are not vigilant hospital records suffer. Skeleton case-sheets of the pattern before us might be found very useful. They consist of a covering sheet on which prescriptions and diet only are exposed to the view of patients and their friends. Sufficient space is allotted within to family and personal history, details of condition on admission—a small space for the results of a general or negative examination of each system, and a large one in which progress can be recorded. In addition, there are separate sheets of different colour for each system, with headings and stamped diagrams for insertion if one system is specially affected. We regard the absence of a sheet for post-mortem findings as an omission, doubtless in some measure justified by the excellence of the results obtained at the institution in question.

SPIRITUALISM.

To the Editor of THE LANCET.

SIR,—Is it not time to state the evidence against spiritualism now in the hands of the medical profession? Apart from actual fraud, my own experience is that spiritualism can do much harm, both physically and mentally. I should be grateful if your readers would, in strict confidence, send me the number of patients in their own practice who through spiritualism and its methods have become: (1) insane; (2) obsessed; or (3) reduced to a state of nervous debility—I am, Sir, yours faithfully,

W. A. GRIGGS, L.R.C.P. Lond., M.R.C.S. Eng.

60, Montpelier-road, Brighton, Sept. 27th, 1919.

THE LAW AND PARENTAL RESPONSIBILITY.

AT the Roborough (Devon) police-court recently a parent was summoned for neglecting to have the tonsils of his child, aged 12 years, removed when ordered by the school medical officer. The child's mental condition was affected by the tonsils, but for the prosecution it was admitted that the question of operation was open to controversy. Eventually the father promised to obey the doctor's instructions and the case was adjourned.

Partly-qualified Man.—The British Federation of Medical and Allied Societies may be the body of which you have heard. The temporary address is 20, Hanover-square, London, W.1, and the points you put are exactly such as the secretary wishes to have brought to his knowledge.

Communications, Letters, &c., to the Editor have been received from—

A.—Administration Générale de l'Assistance Publique, Paris; Dr. J. Allan, Exeter.
B.—Dr. H. W. Barber, Lond.; Mr. E. V. Bell, Middlesbrough; Dr. H. W. Bayly, Lond.; *British and Colonial Pharmacist*, Lond., Editor and Staff of; Dr. G. Blacker, Lond.; Dr. F. F. Bond, Trowbridge; Prof. D. T. Barry, Cork; Dr. J. Blomfield, O.B.E., Lond.; Dr. E. T. Burke, D.S.O., Lond.; Board of Pension Commissioner for Canada, Ottawa; Board of Education, Lond.; Mr. G. Bethell, Lond.; Messrs. Burroughs Wellcome and Co., Lond.
C.—Child Study Society, Lond., Sec. of; Dr. A. Castellani, Paris; Mr. L. Colledge, Lond.; Capt. J. P. Cullen, R.A.M.C.; Dr. H. P. Cholmeley, Forest Row; College of Physicians of Philadelphia; Miss G. Cowlin, Lond.; Chicago School of Sanitary Instruction; Mr. J. F. Colyer Lond.; Sir J. Cantlie, K.B.E., Lond.; Dr. H. Chambers, Lond.; Dr. E. L. Collis, Cardiff.
D.—Dr. V. Dickinson, Lond.; Mr. H. Dickinson, Lond.; Dr. J. Driberg, Lond.
E.—Dr. J. R. Earp, Lond.
F.—Dr. J. G. Forbes, Redhill; Dr. G. L. K. Finlay, Lond.; Factories, Chief Inspector of, Lond.; Dr. N. Farah, Alexandria; Miss D. P. Foster, Lond.
G.—Mr. W. A. Griggs, Brighton; Maj.-Gen. Sir T. J. Gallwey, K.C.M.G., C.B.; Director-General Sir John Goodwin, K.C.B., C.M.G., D.S.O., A.M.S.
H.—Mr. S. Hastings, Lond.; Capt. H. A. Haig, R.A.M.C.; Messrs. W. Heinemann (Medical Books), Ltd., Lond.; Hunterian Society, President and Council of; Prof. W. D. Halliburton, Lond.
J.—Mr. R. R. James, Lond.
K.—Prof. A. Keith, Lond.; Miss M. Knightley, Lond.; Dr. H. C. Kidd, Bromsgrove.
L.—Dr. E. B. Leech, Manchester; Mr. V. W. Low, Lond.; London Medical Exhibition, Secs. of; Dr. C. Lillingston, Gorleston; Messrs. Lawson and Co. (Bristol), Ltd., Lond.; Capt. W. S. R. Lorraine, R.A.M.C.(S.R.)
M.—Ministry of Health, Lond.; Dr. M. F. Moloney, Dungarvan; M. L. J.; Medical Research Committee, Lond.; Dr. R. Marshall, Belfast; Mr. J. MacLean, Sheffield.
N.—Dr. L. E. Napier, Old Windsor; Prof. G. H. F. Nuttall, Cambridge.
P.—Rev. C. R. Pollock, Bristol; Sir D'Arcy Power, K.B.E., Lond.; Mr. W. H. Plows, Lond.; "Partly Qualified Man"; Capt. G. S. Parkinson, D.S.O., R.A.M.C., Gibraltar; Mr. V. G. Parr, Lond.; Penal Reform League, Lond.
R.—Dr. K. Rogers, O.B.E., Lond.; Mr. H. Rundle, Southsea; Dr. R. R. Rentoul, Liverpool; Dr. D. G. Rice-Oxley, Lond.; Dr. J. D. Rolleston, Lond.; Royal College of Physicians, Lond., President and Fellows of.
S.—Prof. W. Stirling, Manchester; South Australia, Registrar General of Births, Deaths, and Marriages, Adelaide; Dr. H. Sutherland, Lond.; Mr. R. L. Sheppard, Lond.
T.—Dr. A. H. Thompson, Lond.; Dr. A. L. Taylor, Lond.; Dr. F. H. Teale, Lond.
U.—University of St. Andrews; University of Chicago Press, Chicago.
V.—Mrs. C. Vince, Lond.; *Vision*, Lond., Editors of; Village Centres Council, Lond., Chairman of.
W.—Sir Gordon Watson, K.B.E., C.M.G., Lond.; Dr. H. Williamson, Lond.; Wellcome Historical Medical Museum, Lond., Curator of; Dr. E. H. Worth, Lond.; Mr. H. W. Wilson, Lond.; Dr. J. W. Wood, Eastcote; Dr. C. Wilson, Lond.; Dr. S. A. K. Wilson, Lond.; Col. A. Webb, C.B., C.M.G., A.M.S.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.